

APPENDIX C

**CITY OF COLUMBUS
PUBLIC SERVICE DEPARTMENT
TRANSPORTATION DIVISION**

**SUPPLEMENTAL SPECIFICATION 1551
DETECTABLE WARNINGS**

March 1, 2004

1551.01	Description
1551.02	Materials
1551.03	Dimensions
1551.04	Application
1551.05	Method of Measurement
1551.06	Basis of Payment

1551.01 Description.

This work shall consist of furnishing all material, equipment, and labor necessary for the placement of detectable warning devices at curb ramps or other walking surfaces, complete and ready for service at locations shown on the plans. All work shall be in accordance with City of Columbus Standard Drawing 2319 Dr. A and with Section 1108 of the Architectural and Transportation Barriers Compliance Board's "Draft Guidelines For Accessible Public Rights-of-Way", dated June 17, 2002 as amended, supplemented and adopted.

1551.02 Materials.

All products shall receive prior approval by the City Engineer and be included in the City of Columbus, Transportation Division current listing of approved Producers and Products for detectable warning surfaces. New Products shall be submitted for review and approval in accordance with the City's General Policy and Procedures for New Products, Materials, and Construction Procedures.

Detectable warning surfaces shall be textured to provide slip resistance and shall contrast visually with adjacent walking surfaces – either light-on-dark, or dark-on-light. The preferred color for a light background shall be brick red. The preferred color for a dark background shall be safety yellow or light granite. Other colors may be specified or approved by the City Engineer provided that samples are submitted to and approved by the City Engineer at least three (3) working days prior to installation. Color submittals shall include manufacturer's statement of percentage of visual contrast provided according to ADAAG A4.29.2. Color shall be

integral with the detectable warning device and shall not be surface applied. Paints or other surface coatings shall not be used.

Detectable warning surfaces shall be classified by type of material and/or application method:

Type "A" – Pre-Cast, Manufactured Clay and Concrete Pavers - ***Approved for new construction, only.***

Type "B" – Surface-Applied or Surface-Formed Domes – Generally includes truncated domes bonded to the surface of existing curb ramps - ***Approved for retrofit, only.***

Type "C" – Stamped, Color Dyed Concrete - ***Approved for new construction, only.***

Type "D" – Surface-Mounted, Thin Tile and Thin Molded Sheet Goods – Generally includes tiles or mats (rigid & flexible, with pre-formed truncated domes), bonded and/or anchored to the surface of existing curb ramps - ***Approved for retrofit, only.***

Type "E" – Pre-Manufactured, Wet-Set Products – Generally includes rigid products pressed into freshly formed concrete - ***Approved for new construction, only.***

1551.03 Dimensions.

Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inches (23 mm) minimum to 1.4 inches (36 mm) maximum, a top diameter of 50% of the base diameter minimum to 65% of the base diameter maximum, and a height of 0.2 inches (5 mm).

Truncated domes in a detectable warning surface shall have a center-to-center spacing of 1.6 inches (41 mm) minimum and 2.4 inches (61 mm) maximum, and a base-to-base spacing of 0.65 inches (16 mm) minimum, measured between the most adjacent domes on a square grid.

Detectable warning surfaces shall extend 24 inches (610 mm) minimum in the direction of travel and the full width of the curb ramp, landing, or blended transition.

Pavers shall be laid so that the centers of domes align with a straightedge placed both perpendicular and parallel with the

direction of travel. Dome Alignment may not differ by more than 1/4-inch.

The detectable warning surface shall be located so that the edge nearest the curb line is 6 inches (150 mm) minimum and 8 inches (205 mm) maximum from the face of the curb line.

Domes shall be aligned on a square grid, aligned in rows parallel and perpendicular to the predominant direction of travel. Domes must not be skewed diagonally to the direction of travel.

1551.04 Application.

Detectable warning devices shall be installed in accordance with manufacturer's specifications, except as modified by this specification or as otherwise specified on the plans. The finished surface shall be uniformly profiled to match the adjoining surfaces without lips, obstructions and shall drain completely.

The contractor shall warrant the installed surface to last no less than five years without losing more than two percent of the truncated domes due to delaminating as a result of product failure, and shall further warrant the surface for a minimum of five years against fading, chipping, peeling, cracking, or loss of original shade due to sunlight, salt or exposure to weathering.

Special Application Notes: Type "A" – Pre-Cast, Manufactured Clay and Concrete Pavers:

- Pavers shall be laid on an unreinforced concrete base. Thickness of the base shall be the greater of 4-inches or the specified, nominal thickness of the curb ramp.
- Pavers shall be set into a 1/2-inch thick bed of freshly poured latex or epoxy -modified cement mortar.
- Pavers (exclusive of domes) shall be flush with the surrounding concrete. The surface shall not differ by more than 1/8-inch in height.
- Pavers shall be laid so that the centers of domes align with a straightedge placed both perpendicular and parallel with the direction of travel. Dome Alignment may not differ by more than 1/4-inch.
- Joints between pavers and surrounding concrete surface shall be mortared and shall not exceed 1/4-inch in width.

Mortared joints shall be flush with top surface and struck so as to give a smooth surface.

- Joint spacing between pavers shall be no greater than 5/32-inch and not less than 1/16-inch. Pavers shall not be directly touching each other unless they have spacing bars
- Joints between pavers shall be sand-filled. Sand shall be washed, non-plastic, well-graded angular material free from deleterious or foreign matter, with maximum particle size not larger than the specified joint spacing. Gradation shall conform to Item 703.02 fine aggregate for concrete. Sweep this material to fill the joints and water with a fine mist. Repeat as necessary to achieve a sand-filled joint. When requested by the Engineer, the Contractor shall submit gradation analysis of the proposed joint material performed in accordance with ASTM C-136.
- Pavers shall consist of full, completely formed domes and shall be crack-free.
- The face of all pavers shall be clean of cement and protected so as to avoid chipping during construction.
- A minimum of 6-inch horizontal edge restraint shall be provided around the full perimeter of the detectable warning pavers. The restraints shall consist of Class "C" cast in place concrete, (City of Columbus CMS item 499).

1551.05 Method of Measurement.

The number of detectable warning devices shall be the actual number individual surfaces furnished and in place, complete and accepted. This item shall be complete and include all work necessary to provide a complete and useable detectable warning device. This shall include but not be limited to: layout, saw-cutting, removals, concrete and cement base materials, bedding, surface preparation, surface sealant, and repair of adjoining areas disturbed by the installation of the detectable warning surface.

1551.06 Basis of Payment.

Unless specifically included under other items on the plans, payment for accepted quantities will be made at the contract unit price for:

<u>Item</u>	<u>Unit</u>	<u>Description</u>
1551	Each	Detectable Warning, Type "A"
1551	Each	Detectable Warning, Type "B"
1551	Each	Detectable Warning, Type "C"
1551	Each	Detectable Warning, Type "D"
1551	Each	Detectable Warning, Type "E"

Note:

Payment for Item 1551 shall include all costs of furnishing material, equipment, and labor necessary for the placement of detectable warning devices, and shall be in addition to any overlapping payments for square foot of sidewalk, and the "per-each" payment for forming and finishing the curb ramp.

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**SUPPLEMENTAL SPECIFICATION 1550
CURB RAMPS**

August 28, 2002

1550.01	Description
1550.02	Excavation and Forms
1550.03	Placing and Finishing
1550.04	Curing
1550.05	Method of Measurement
1550.06	Basis of Payment

1550.01 Description. This work shall consist of constructing curb ramps, including ramps, flares, landings, and sidewalk transitions, in accordance with lines, grades, and dimensions shown on the plans or established by the engineer. Except as noted, all work for this item shall conform to item 451.

1550.02 Excavation and forms. Excavation and forms shall conform to Section 608.03 (a) and (b).

1550.03 Placing and Finishing. Placing and finishing shall conform to Section 608.03 (c).

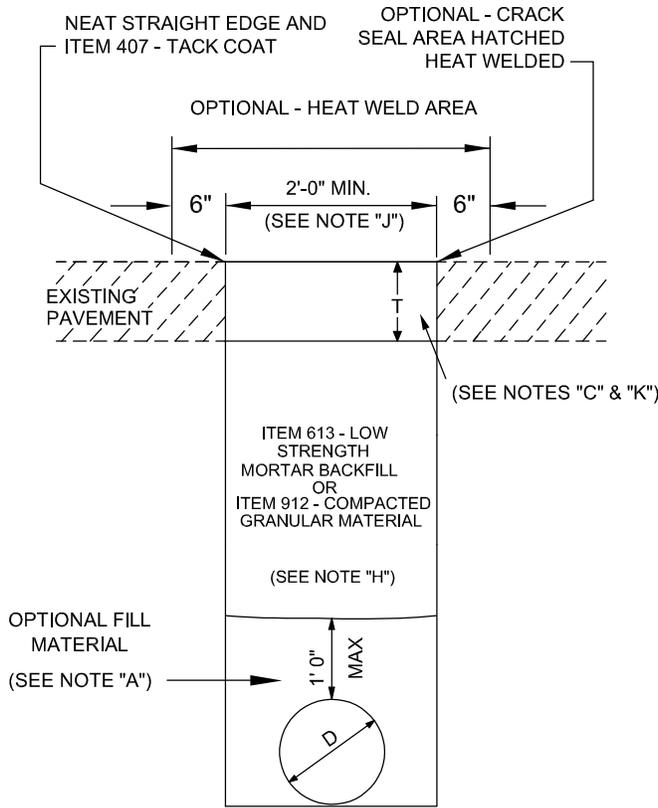
1550.04 Curing. Concrete shall be cured in accordance with Section 451.10.

1550.05 Method of Measurement. Curb ramps in concrete sidewalk will be measured and paid as both square feet of sidewalk and as the number of curb ramps complete. The unit payment for each curb ramp shall include the cost of any additional materials, grading, forming and finishing not included in the square unit item for sidewalk.

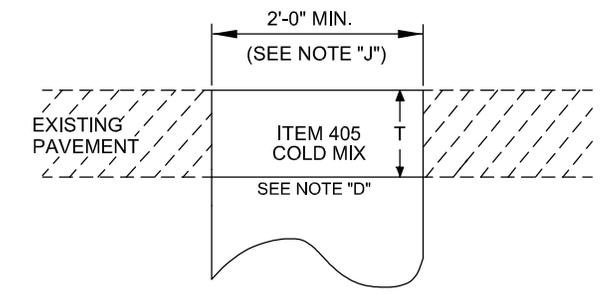
This item shall include furnishing, placing, preserving construction layout, including field painted markings, or other controls, in accordance with the contract plans and proposal for the construction of various elements of the project.

1550.06 Basis of Payment. The accepted quantities of specific items of curb ramps will be paid for at the contract prices designated for each of the pay items listed. Excavation, backfill, expansion joint material and other related miscellaneous items will not be paid for separately. The cost thereof shall be included in the cost of the walk or curb ramp which they are a part of. (However, work to lower curb ramp landing areas or alter slopes will be paid under Item 203.)

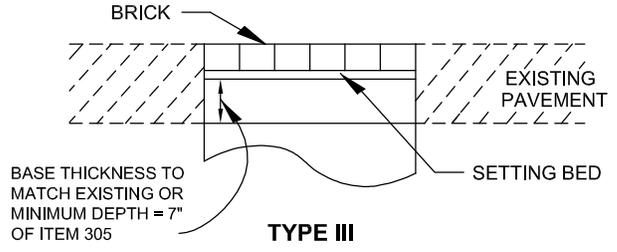
Item	Unit	Description
1550	Square Foot	Concrete Walk, 4-inch
1550	Square Foot	Concrete Walk, 8-inch
1550	Each	Curb Ramp, Cost to Finish



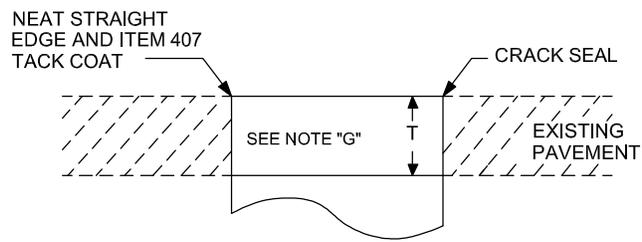
TYPE I
STANDARD FLEXIBLE ASPHALT REPAIR
 (SEE NOTES "B" & "C")



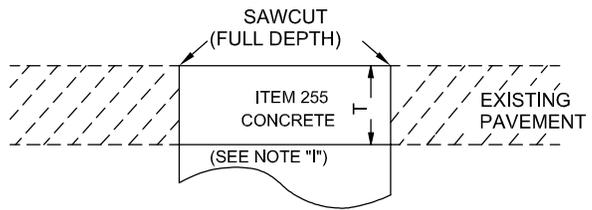
TYPE II
WINTER OPERATIONS FLEXIBLE ASPHALT REPAIR
 (SEE NOTE "E")



TYPE III
BRICK STREET REPAIR
 (SEE NOTE "F")



TYPE IV
ALLEY REPAIR
 (SEE NOTE "G")



TYPE V
CONCRETE STREET REPAIR, CONCRETE
BASE, CONCRETE BUS PAD OR
CONCRETE PANEL REPLACEMENT
 (SEE NOTE "I")

BACKFILL FOR ALL TYPES SHALL MEET THE REQUIREMENTS SHOWN IN TYPE I ABOVE.

T: MATCH EXISTING PAVEMENT THICKNESS, HOWEVER, MINIMUM OF 10" ON ALL STREET CUTS AND 6" ON ALL ALLEYS.

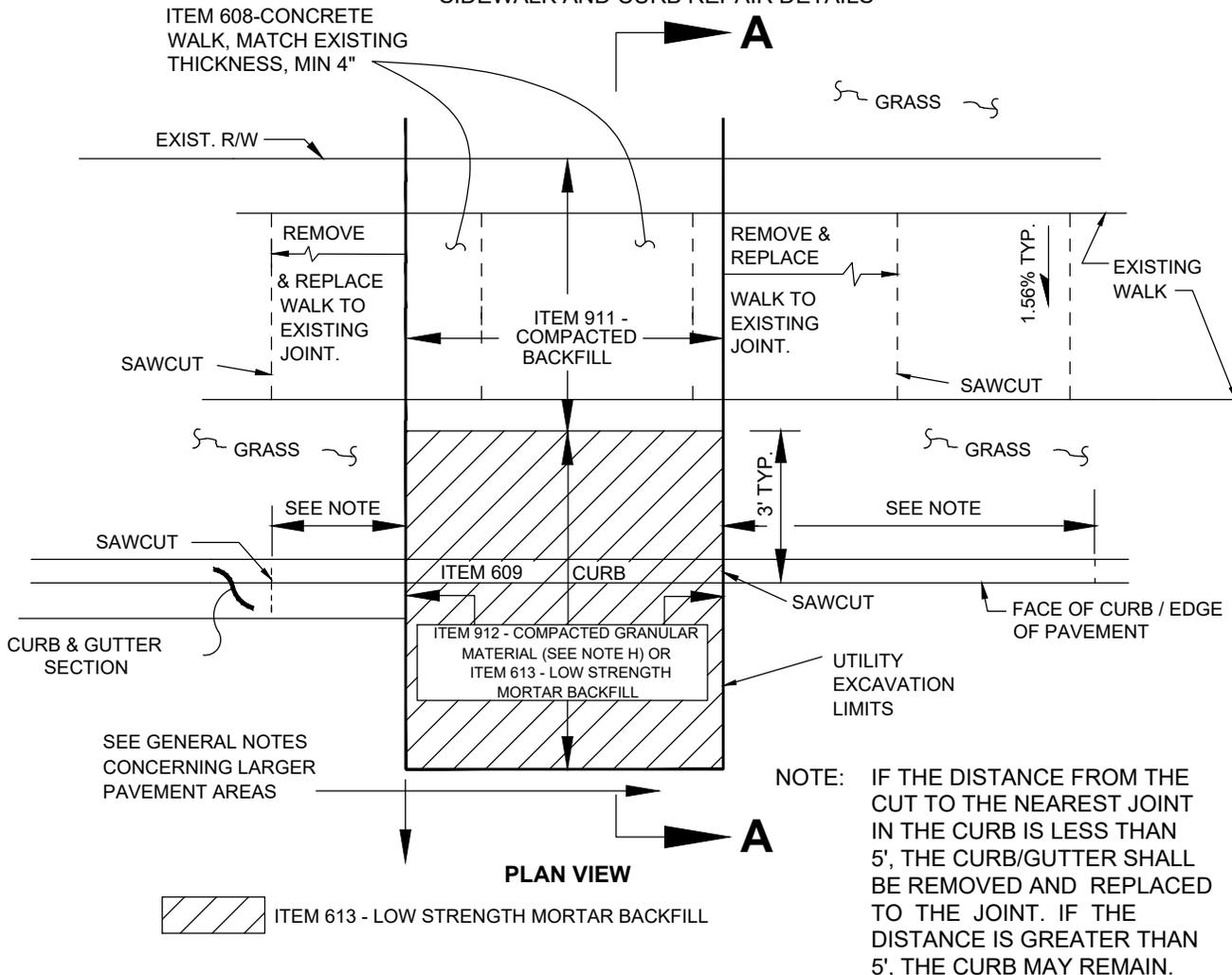
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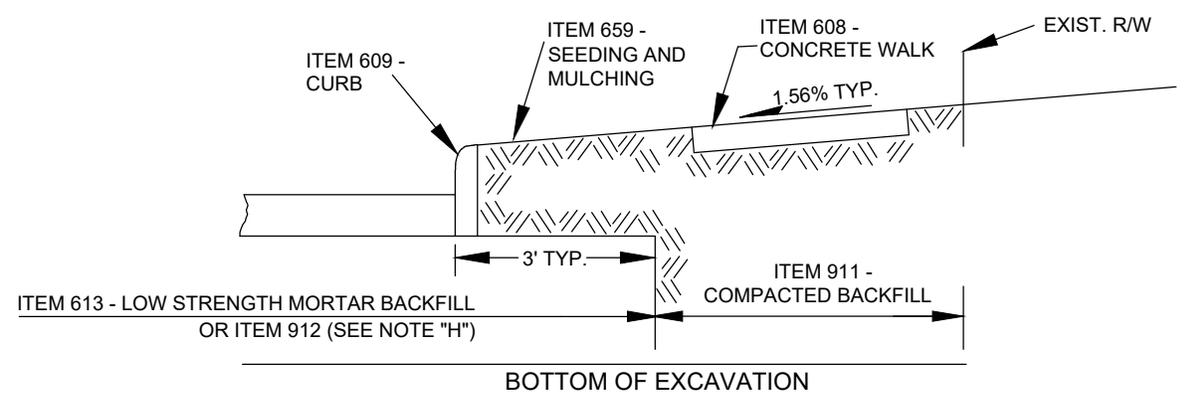
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 CITY ENGINEER

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SIDEWALK AND CURB REPAIR DETAILS



SECTION A-A



ALL GRASS AREAS SHALL BE SEEDED IN ACCORDANCE WITH ITEM 659 - SEEDING AND MULCHING.

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GENERAL NOTES

EXCAVATION PERMIT REQUIRED: A CITY OF COLUMBUS STREET EXCAVATION PERMIT IS REQUIRED FOR ALL EXCAVATIONS WITHIN THE PUBLIC RIGHT-OF-WAY, AS SET FORTH BY COLUMBUS CITY CODE, CHAPTER 903 AND ISSUED IN ACCORDANCE WITH PROVISIONS IN THE GENERAL RULES AND REGULATIONS OF THE DEPARTMENT OF PUBLIC SERVICE (DPS).

SCOPE OF WORK

THE CONTRACTOR SHALL FULLY COMPLY WITH THE CITY OF COLUMBUS ADA RULES AND REGULATIONS AND THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITION.

THIS WORK SHALL CONSIST OF PAVEMENT REMOVAL, NECESSARY EXCAVATION, AND PAVEMENT REPLACEMENT IN ACCORDANCE WITH THE DETAILS SHOWN HEREIN. ALL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT CITY OF COLUMBUS CONSTRUCTION AND MATERIALS SPECIFICATION (CMSC).

PROCEDURES USED FOR THE PAVEMENT REMOVAL AND REPLACEMENT SHALL NOT CAUSE SPALLING OR CRACKING OF ADJACENT PAVEMENT.

WHEN THE PAVEMENT IS REMOVED AND THE CONTRACTOR IS UNABLE TO COMPLETE THE REQUIRED REPLACEMENT IN TIME FOR IT TO BE OPENED TO TRAFFIC AS INDICATED ON THE PERMIT, THE EXCAVATION SHALL BE FILLED WITH THOROUGHLY COMPACTED ITEM 405 BITUMINOUS COLD MIX WITH A DURABLE SURFACE (OR APPROVED BITUMINOUS MATERIAL) OR PROPERLY PLATED PER CHAPTER 903 AND SHEETS 12 AND 13 OF THIS STANDARD DRAWING. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THESE TEMPORARY MEASURES WHILE THEY ARE IN SERVICE. THE COST OF PLACING, MAINTAINING, REMOVING AND DISPOSING OF THE TEMPORARY PATCHES OR PLATES WILL BE AT THE CONTRACTOR'S EXPENSE.

WHEN ITEM 613 LOW STRENGTH MORTAR BACKFILL (LSMB) IS USED AS A BACKFILL, NO PAVEMENT SHALL BE PLACED UNTIL BLEED WATER HAS BEEN EVAPORATED FROM THE LSMB SURFACE OR HAS BEEN DRAINED OR REMOVED FROM THE SURFACE. ITEM 613 LSMB IS NOT PERMITTED AS A TEMPORARY DRIVING SURFACE OR WITHIN THE DEPTH OF THE PAVEMENT REPAIR. LSMB SHALL NOT BE PLACED HIGHER THAN THE SUBGRADE ELEVATION AND NOT EXTEND INTO THE PAVEMENT BUILD-UP.

THE PAVEMENT REPAIR SHALL BE PERFORMED BY THE CONTRACTOR OR PERMITTEE IN ACCORDANCE WITH CITY SPECIFICATIONS. IF DESIRED, ANY OR ALL OF THIS WORK CAN BE PERFORMED BY THE CITY OF COLUMBUS. THE CITY SHALL COLLECT APPROPRIATE FEES AT THE TIME THE PERMIT IS ISSUED FOR SAID WORK. PAVEMENT RESTORATION MAY TRIGGER REQUIRED ADA IMPROVEMENTS PER CITY OF COLUMBUS ADA RULES AND REGULATIONS.

RESTORATION OF ANY SIDEWALK, CURB, STREET PAVEMENT (INCLUDING CRACK SEALING OR HEAT WELDING), ETC., SHALL OCCUR NO LATER THAN 30 DAYS AFTER CONCLUSION OF ANY UTILITY REPAIR OR INSTALLATION ACTIVITY. CONSTRUCTION ACTIVITY COMPLETED DECEMBER THROUGH APRIL SHALL BE RESOLVED NO LATER THAN MAY 31ST. ADDITIONAL PERMITS SHALL NOT BE ISSUED UNTIL THE VIOLATIONS ARE CORRECTED TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC SERVICE. IN ADDITION, EACH VIOLATION MAY BE ENFORCED IN ACCORDANCE WITH SECTION 903.99 OF THE COLUMBUS CITY CODE.

CITY CHAPTER 903 - SECTION 9 - NEW PAVEMENT OR REPAVEMENT

A THREE (3) YEAR MORATORIUM SHALL BE ENFORCED FOR ALL NEW PAVEMENT OR REPAVEMENT/RESURFACING. **NO PERMIT SHALL BE GRANTED FOR THE PURPOSE OF OPENING SUCH PAVEMENT FOR A PERIOD OF NO LESS THAN THREE (3) YEARS AFTER COMPLETION,** EXCEPT FOR THE PURPOSE OF REPAIRING LEAKING PIPES OR WORK DEEMED NECESSARY BY THE DIRECTOR OF PUBLIC SERVICE, CITY ENGINEER OR DESIGNEE. EMERGENCY REPAIRS OR PAVEMENT OPENINGS WITHIN THE THREE (3) YEAR MORATORIUM SHALL HAVE ADDITIONAL AND SPECIFIC REQUIREMENTS BEYOND THE MINIMUM REQUIREMENT OF STD DWG 1441.

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SCOPE OF WORK (CONTINUED FROM PREVIOUS SHEET)

SPECIAL IMPROVED STREETS

SPECIAL IMPROVED STREETS, AS APPROVED BY THE DIRECTOR OF PUBLIC SERVICE, CITY ENGINEER OR DESIGNEE SHALL HAVE FIVE (5) YEAR MORATORIUM. NO PERMIT SHALL BE GRANTED FOR THE PURPOSE TO MAKE ANY OPENING ON ANY HARD SURFACE AREAS SUCH AS PAVEMENT, SIDEWALK, CURB, ETC., WITHIN THE RIGHT OF WAY OF SPECIAL IMPROVED STREET FOR A PERIOD OF NO LESS THAN FIVE (5) YEARS AFTER COMPLETION OF SUCH HARD SURFACE AREA. EMERGENCY REPAIRS OR PAVEMENT OPENINGS WITHIN THE FIVE (5) MORATORIUM SHALL HAVE ADDITIONAL AND SPECIFIC REQUIREMENTS BEYOND THE MINIMUM REQUIREMENTS OF STD DWG 1441 AND APPROVED ONLY BY THE DIRECTOR OF THE PUBLIC SERVICE AND CITY ENGINEER OR DESIGNEE.

CURB RAMP INSTALLATION

ALL CURB RAMPS SHALL BE INSTALLED PER STANDARD DRAWINGS 2300, 2319 AND DPS ADA RULES AND REGULATIONS.

SPECIAL PAVEMENT, BASE, AND STORMWATER BMPS

WHEN PAVEMENT CUTS OR REPAIRS IMPACT NON-CONVENTIONAL PAVEMENT BUILDUPS, THE CITY ENGINEER OR DESIGNEE WILL PROVIDE DIRECTION ON THE REQUIRED RESTORATION. IF THE NON-CONVENTIONAL PAVEMENT IS NOT IDENTIFIED IN THE DESIGN STAGE, IT IS THE PERMIT HOLDER'S RESPONSIBILITY TO BRING THIS TO THE ATTENTION OF THE DEPARTMENT OF PUBLIC SERVICE. SOME EXAMPLES OF NON-CONVENTIONAL PAVEMENT INCLUDE, FABRICS AND GRIDS USED TO STABILIZE SUBGRADE AND PAVEMENT, SPECIALITY BACKFILL AND SOIL SUPPORT STRUCTURES, PERMEABLE PAVEMENT AND STORMWATER BEST MANAGEMENT PRACTICES (BMPS).

TRAFFIC CONTROL

WHEN PAVEMENT CUTS OR REPAIRS REMOVE EXISTING STRIPING OR OTHERWISE RENDER STRIPING UNSERVICEABLE AS DETERMINED BY THE ENGINEER, TEMPORARY PAVEMENT MARKINGS PER CMSC 614 SHALL APPLY. TEMPORARY CLASS II MARKINGS SHALL BE PLACED IMMEDIATELY. CLASS II MARKINGS ARE ONLY FOR LANE LINES, CENTERLINES AND GORE MARKINGS AND PLACED FOR A MAXIMUM OF 14 DAYS. ALL TEMPORARY MARKINGS PLACED FOR A PERIOD LONGER THAN 14 DAYS BUT LESS THAN 30 DAYS SHALL BE ITEM 642 CLASS III MARKINGS. PERMANENT THERMOPLASTIC OR SPRAY THERMOPLASTIC SHALL BE PLACED WITHIN 30 DAYS ON A SURFACE COURSE. WHEN THERMOPLASTIC OR SPRAY THERMOPLASTIC IS TO BE INSTALLED, TEMPORARY MARKINGS SHALL BE CLASS III. ALL OVER WINTER TEMPORARY MARKINGS SHALL BE TYPE 1. ALL TEMPORARY PAVEMENT MARKINGS ON CONCRETE SHALL BE AS PER 740.06, TYPE I. PERMANENT PAVEMENT MARKINGS ON CONCRETE SHALL MATCH THE EXISTING PAVEMENT MARKINGS DIRECTED BY THE ENGINEER.

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SPECIAL NOTES

NOTE 'A' : LOW STRENGTH MORTAR BACKFILL (LSMB)

WHEN USING LOW STRENGTH MORTAR BACKFILL (LSMB), THE OPTIONAL FILL AREA OVER THE CONDUIT MAY BE BACKFILLED WITH SAND, GRANULAR MATERIAL, OR OTHER SUITABLE 912 MATERIAL, FOR A DISTANCE NOT TO EXCEED 1 FT. A PROTECTIVE BARRIER OF VISQUEEN OR SIMILAR MATERIAL IS PERMITTED.

NOTE 'B' : TYPE 1 PAVEMENT REPAIR SEALING

FOR TYPE I PAVEMENT REPAIR SEALING OPTIONS - THE FOLLOWING METHODS ARE PERMITTED:

1. CRACK SEALING METHOD: SEAL THE PERIMETER SURFACE OF THE REPAIRED AREA BY APPLYING A NOMINAL 4 INCH STRIP OF APPROVED ITEM 423 - CRACK SEALING, TYPE II OR III.
2. HEAT WELD METHOD: FOR PAVEMENT REPAIR LOCATIONS, THE AREA TO BE HEAT WELDED IS TO INCLUDE THE CUT AND EXTEND FOR 6 INCHES BEYOND EACH SIDE OF THE CUT FOR A NOMINAL DEPTH OF 2 INCHES.

NOTE 'C' : TYPE 1 PAVEMENT REPAIR RESURFACING (SEE SHEETS 9-11)

FOR TYPE I PAVEMENT REPAIR APPLICATIONS, THE FOLLOWING METHODS ARE PERMITTED:

1. IF LANE WIDTH TO BE RESURFACED: USE ITEM 441 ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, (BINDER MATCHING SURFACE COURSE) PLACED IN LIFTS NOT EXCEEDING 3 INCHES TO REPAIR PAVEMENT TO THE SURFACE. DURING THE LATER MILL AND ASPHALT OVERLAY OPERATION, USE ITEM 441 ASPHALT CONCRETE SURFACE COURSE, TYPE 1.
2. IF NO LANE WIDTH RESURFACING: USE ITEM 441 ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, PLACED IN LIFTS NOT EXCEEDING 3 INCHES AND ITEM 441 ASPHALT CONCRETE, SURFACE COURSE, TYPE 1 PLACED AT A MAXIMUM 1.5 INCH LIFT THICKNESS. THE INTERMEDIATE COURSE MATERIAL IS NOT PERMITTED AS THE FINAL SURFACE COURSE.

THE ASPHALT BINDER FOR INTERMEDIATE AND SURFACE COURSE ASPHALT SHALL BE PG 70-22 ON ARTERIAL ROADWAYS, BUS ROUTES, AND WHERE SPECIFIED BY THE PERMIT OFFICE. ALL OTHER ROADS SHALL BE PG 64-22.

TRENCHES THAT REQUIRE FULL LANE RESURFACING SHALL INCLUDE FULL LANE RESURFACING ON ALL CONNECTING TRENCHES AND ASSOCIATED VALVE OR CASTING WORK AREAS ALONG ADJACENT STREETS (UTILITY SERVICE REPAIRS SHALL BE AS PER SHEETS 9, 10 AND 11.) REGARDLESS OF THE LENGTH OF THE CONNECTING TRENCH.

WHEN AN EXCAVATION EXCEEDS 100 FT IN LENGTH, THE REPAIR SHALL INCLUDE ITEM 254 PLANING OF A FULL LANE WIDTH (OR ANY OTHER LANE WIDTH AS DIRECTED BY THE DEPARTMENT OF PUBLIC SERVICE) TO A DEPTH OF 1- 1/2 INCHES FOR THE ENTIRE LENGTH OF THE EXCAVATION. THE RESURFACING SHALL NOT INTRODUCE ANY LONGITUDINAL PAVEMENT JOINTS. WHEN RESURFACING OUTSIDE LANES, RESURFACING SHALL EXTEND TO THE FACE OF CURB OR EDGE OF PAVEMENT. IF PAVEMENT PLANING DOES NOT PROVIDE A UNIFORM PLANED SURFACE DUE TO THE EXISTING PAVEMENT CONDITION, THE DEPTH OF THE PAVEMENT REMOVAL AND RESURFACING SHALL BE ADJUSTED ACCORDINGLY. WHERE THE PROPOSED RESURFACING IS IN CLOSE PROXIMITY TO AN EXISTING LONGITUDINAL JOINT, THE RESURFACING SHALL BE EXTENDED TO MEET OR OVERLAP THAT JOINT. WHEN RESURFACING ADJOINS AN AREA WITH EXISTING OVERLAID GUTTER, THE RESURFACING SHALL EXTEND THE FULL LANE WIDTH TO THE EXISTING PAVEMENT EDGE AT THE FACE OF CURB. THE PLANED AREA SHALL BE TACKED USING ITEM 407.02 MATERIAL PRIOR TO PLACING AND COMPACTING APPROVED ASPHALT CONCRETE WITH A PAVER IN ACCORDANCE WITH CURRENT CITY STANDARD SPECIFICATIONS. ITEM 423 -CRACK SEALING, TYPE II OR III SHALL BE APPLIED TO EXPOSED JOINTS ONCE THE PAVING OPERATION HAS BEEN COMPLETED.

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WHEN AN EXCAVATION CROSSES LANES, ALL LANES AFFECTED SHALL REQUIRE PLANING AND RESURFACING AS DESCRIBED ABOVE. THIS WORK SHALL INCLUDE ALL OF THE AFFECTED PAVEMENT AREA. WHEN EXCAVATION WORK FOR LATERALS CROSS LANES AT A FREQUENCY OF 2 OR MORE TRENCHES WITHIN 100 FT OF ROADWAY, THE REPAIR SHALL INCLUDE THE RESURFACING OF A FULL LANE WIDTH AS DESCRIBED ABOVE FOR THE AFFECTED LANES EXTENDING A MINIMUM OF 2 FT BEYOND THE LATERAL EXCAVATIONS LOCATED FARTHEST APART.

FULL LANE WIDTH RESURFACING OUTSIDE TRAVEL LANES SHALL EXTEND TO THE EDGE OF PAVEMENT FACE OF CURB UNLESS A SHOULDER WIDER THAN 4 FEET IS SEPARATED BY AN EXISTING LONGITUDINAL JOINT.

WHEN 2 OR MORE PAVEMENT REPAIRS ARE LOCATED WITHIN 100 FT OF EACH OTHER IN THE SAME LANE, THE REPAIR SHALL INCLUDE THE RESURFACING OF A FULL LANE WIDTH AS DESCRIBED ABOVE OF THE AFFECTED LANES EXTENDING A MINIMUM OF 2 FT BEYOND THE PAVEMENT REPAIRS LOCATED FARTHEST APART.

IF APPROVED BY THE CITY OF COLUMBUS, WHEN A PAVEMENT REPAIR AREA IS GREATER THAN 5 FT IN WIDTH AND/OR GREATER THAN 100 FT IN LENGTH, THE PAVEMENT REPAIR SECTION MAY CONFORM TO 3 INCHES OF ITEM 441 ASPHALT CONCRETE ON 7 INCHES OF ITEM 301 ASPHALT CONCRETE BASE (PLACED IN 2 LIFTS). LANE WIDTH RESURFACING REQUIREMENTS STILL APPLY. THIS OPTION MUST BE NOTED ON THE PERMIT APPLICATION AND APPROVED BY THE CITY OF COLUMBUS.

NOTE 'D' : TYPE II BITUMINOUS COLD MIX PLACEMENT

COLD MIX SHALL BE ITEM 405 BITUMINOUS COLD MIX OR OTHER COLD MIX APPROVED BY THE CITY OF COLUMBUS. IN LIEU OF COLD MIX, THE CONTRACTOR MAY USE STOCKPILED ITEM 441 ASPHALT CONCRETE AND REHEAT IT TO PLACE IN CUT AS TEMPORARY PAVEMENT REPAIR. TYPE II PAVEMENT REPLACEMENT SHALL CONSIST OF FULL DEPTH ITEM 405 COLD MIX FOR SMALL EXCAVATIONS.

NOTE 'E' : TYPE II TEMPORARY COLD MIX PLACEMENT

THE TEMPORARY COLD MIX IS TO BE REPLACED WITH ITEM 441 ASPHALT CONCRETE FOLLOWING PAVEMENT REPAIR PROCEDURES. THIS WORK SHALL BE PERFORMED AS SOON AS ASPHALT IS AVAILABLE.

NOTE 'F' : TYPE III REPAIR OF BRICK STREETS

1. THE CITY OF COLUMBUS MAINTAINS TWO TYPES OF BRICK STREETS: 1) HISTORICAL BRICK STREETS; AND 2) NEWER STYLE ROADWAY PAVER STREETS THAT COMPLY WITH SUPPLEMENTAL SPECIFICATION 1524. WHEN EXCAVATING AND REPAIRING BRICK STREETS, THE MATERIAL USED FOR REPLACEMENT SHALL MATCH THE EXISTING.
2. BRICKS OR PAVERS REMOVED FROM A REPAIR AREA SHALL BE STORED IN A SAFE PLACE BY THE CONTRACTOR FOR REUSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY BRICKS OR PAVERS THAT ARE STOLEN OR DAMAGED, AT NO ADDITIONAL COST TO THE CITY.
3. IF BRICKS OR PAVERS ARE SUPPLIED BY THE CONTRACTOR, THEY MUST CLOSELY MATCH THE EXISTING BRICKS OR PAVERS AND FIRST BE APPROVED BY THE CITY BEFORE THEY ARE USED. SEE THE DEPARTMENT OF PUBLIC SERVICE APPROVED PRODUCERS / PRODUCTS LISTS THAT CAN BE FOUND AT THE "DOCUMENT LIBRARY ON DEPARTMENT OF PUBLIC SERVICE WEBSITE"
4. SAW CUTTING: ALL PARTIAL BRICKS SHALL BE SAWCUT. FURTHER, NO BRICK WILL BE PERMITTED TO BE CUT, FOR REPLACEMENT, TO A LENGTH LESS THAN 1/2 ITS ORIGINAL LENGTH. THIS MAY REQUIRE SAW CUTTING OF ADJACENT UNDISTURBED BRICK(S).
5. DURING REMOVAL OF THE EXISTING BASE MATERIAL, IT SHALL BE CUT BACK TO AS NEARLY VERTICAL AS POSSIBLE. IF SHEARING OF THE ADJACENT BASE RESULTS, THE CONTRACTOR SHALL REMOVE ADDITIONAL BASE MATERIAL UNTIL A VERTICAL FACE IS ACHIEVED.

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6. DURING INSTALLATION, THE BRICK IS TO BE RESET IN REASONABLY CLOSE CONFORMITY TO THE PATTERN OF THE EXISTING BRICK PAVEMENT ON A SETTING BED OVER ITEM 305 CONCRETE BASE. THE SETTING BED FOR HISTORICAL BRICK STREETS SHALL CONSIST OF 1 INCH OF SAND; WHEREAS, 3/4-INCH BITUMINOUS SETTING BED FOR NEWER STYLE ROADWAY PAVERS. THE CONCRETE BASE THICKNESS SHALL MATCH THE EXISTING BASE OR A MINIMUM OF 7 INCHES.
- 6A. HISTORICAL BRICKS WITHOUT SPACING LUGS: THE MAXIMUM WIDTH OF A BRICK JOINT SHALL BE 1/2 INCH. THIS RESTRICTION SHALL ALSO APPLY TO THE JOINT FORMED ADJACENT TO THE PERIMETER OF A REPAIR AREA, WHERE THE ROWS MAY NOT BE PARALLEL TO ONE ANOTHER. ALL JOINTS SHALL BE FILLED WITH POLYMERIC SAND FROM THE APPROVED MATERIALS LIST FOLLOWING MANUFACTURER'S INSTRUCTIONS. THIS MAY REQUIRE MORE THAN ONE APPLICATION. FURTHER, MECHANICAL VIBRATION WILL BE REQUIRED FOR CONSOLIDATION OF DRY MORTAR MIX.
- 6B. NEWER STYLE ROADWAY PAVERS: INSTALLATION AND MATERIALS SHALL MEET WITH THE REQUIREMENTS OF COLUMBUS SUPPLEMENTAL SPECIFICATION 1524.

PAVEMENT & UTILITY CUT REPAIR STANDARDS

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SPECIAL NOTES

NOTE 'G': TYPE IV ALLEY REPAIR

FOR ALLEY REPAIRS, THE PAVEMENT REPLACEMENT SHALL CONFORM TO THE TYPE AND THICKNESS OF THE EXISTING PAVEMENT. CHIP AND SEAL TYPE ALLEYS SHALL REQUIRE MATCHING THE EXISTING THICKNESS OF PAVEMENT WITH THE APPROPRIATE COMBINATION OF MATERIALS BASED ON THE SIZE OF THE EXCAVATION. THE MINIMUM PAVEMENT THICKNESS SHALL CONSIST OF 6 INCHES OF ITEM 441 ASPHALT CONCRETE. FINISHED CONCRETE PAVEMENT IS NOT PERMITTED. MATERIALS USED SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT CMSC.

IF MORE THAN 1/3 OF THE WIDTH OF AN ALLEY IS REMOVED, THE PAVEMENT SHALL BE REPLACED AS PER TYPE 1 AND THEN OVERLAYED OVER THE TOTAL WIDTH OF PAVEMENT AND LENGTH OF TRENCH.

NOTE 'H': ITEM 912 - COMPACTED GRANULAR MATERIAL

THIS METHOD OF BACKFILL CAN ONLY BE USED WITH FULL TIME CITY INSPECTION. AN INSPECTION FEE MUST BE POSTED WHEN THE PERMIT IS ISSUED.

NOTE 'I': CONCRETE BASE OR FULL DEPTH CONCRETE PAVEMENT

FULL DEPTH CONCRETE PAVEMENT

IF THE UTILITY TRENCH CUT IS WITHIN 6 FT OF A TRANSVERSE OR LONGITUDINAL JOINT, THE LIMITS OF THE REPAIR SHALL EXTEND TO THE JOINT. THIS MAY REQUIRE THE ENTIRE PANEL TO BE REPLACED. AT A MINIMUM, THE LIMITS OF THE CONCRETE REPAIR SHALL EXTEND 1 FT BEYOND THE LIMITS OF THE TRENCH.

IF MAINTENANCE OF TRAFFIC REQUIREMENTS ALLOW FOR SUFFICIENT CURING TIME SO THAT FAST SETTING CONCRETE IS NOT NEEDED, STANDARD CONCRETE BASE OR FULL DEPTH CONCRETE PAVEMENT MAY BE PLACED AS PER CMSC ITEM 255. THIS OPTION MUST BE NOTED ON THE PERMIT APPLICATION AND APPROVED BY THE CITY OF COLUMBUS. THE ENTIRE IMPACTED CONCRETE PANEL SHALL BE REPLACED WHEN THE UTILITY CUT IS LOCATED IN THE DOWNTOWN BUSINESS DISTRICT.

PAVEMENT WITH A CONCRETE BASE THE NEW CONCRETE BASE THICKNESS SHALL MATCH THE EXISTING (7 INCHES MINIMUM) AND IT SHALL BE PLACED TO THE LEVEL OF THE ADJACENT CONCRETE BASE WITH 1-1/2 INCHES OF ITEM 441 ASPHALT CONCRETE OVERLAY. LANE WIDTH RESURFACING REQUIREMENTS OF TYPE 1 STILL APPLY.

NOTE 'J': MINIMUM TRENCH RESTORATION WIDTH

THE TRENCH WIDTH FOR SMALL PIPES AND CONDUITS SHALL BE OF SUFFICIENT WIDTH TO ALLOW FOR THE PROPER PLACEMENT OF THE BACKFILL MATERIAL. THE PAVEMENT PORTION OF THE TRENCH SHALL BE A MINIMUM OF 2 FT IN WIDTH. THIS IS TO ALLOW FOR THE PROPER COMPACTION OF THE ASPHALT PAVEMENT. IF THE TRENCH FOR PLACING CONDUIT IS NARROWER THAN 2 FT THEN THE PAVEMENT PORTION SHALL BE CUT BACK TO PROVIDE THE 2 FT MINIMUM FOR PAVING OPERATIONS.

NOTE 'K': TEMPORARY CONCRETE PAVEMENT

CONCRETE MAY BE USED AS A PAVEMENT REPAIR OPTION AND A TEMPORARY PAVEMENT SURFACE FOR TYPE 1 PAVEMENT REPAIR IF APPROVED BY THE CITY. THE CONCRETE SHALL BE PLACED PER CMSC ITEM 255 AND FOLLOW THE REQUIREMENTS OF TYPE V PAVEMENT REPAIR. 1-1/2 INCHES OF ITEM 441 ASPHALT OVERLAY WILL BE REQUIRED OVER THE CONCRETE WHEN WORK IS COMPLETED. THIS OPTION MUST BE NOTED ON THE PERMIT APPLICATION APPROVED BY THE CITY OF COLUMBUS.

NOTE 'L': SURFACE REPAIR SHAPE (SEE SHEET 11)

THE SURFACE REPAIR OF ALL IRREGULAR-SHAPED EXCAVATIONS SHALL ALWAYS BE A RECTANGLE WITH PARALLEL SIDES THAT ARE PERPENDICULAR TO THE DIRECTION OF TRAVEL OF THE ROADWAY.

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ACCEPTABLE UTILITY CUT REPAIRS

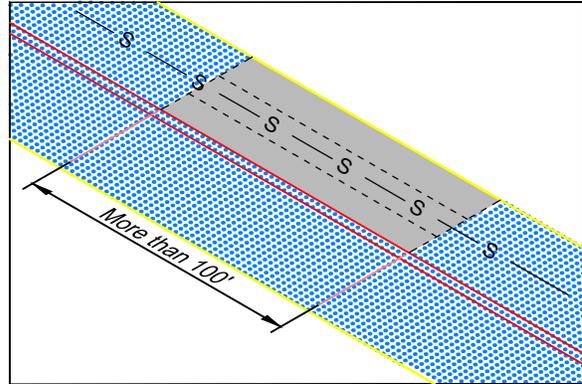
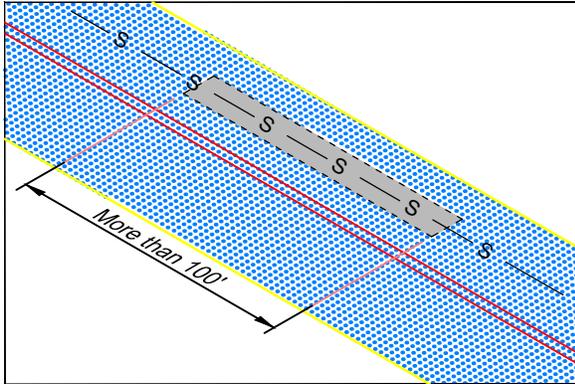
EXCAVATION EXCEEDING 100' IN LENGTH LOCATED WITHIN LANE

WHEN AN EXCAVATION EXCEEDS 100 FT IN LENGTH, THE REPAIR SHALL INCLUDE ITEM 254 PAVEMENT PLANING OF A FULL LANE WIDTH (OR ANY OTHER LANE WIDTH AS DIRECTED BY THE DEPARTMENT OF PUBLIC SERVICE) TO A DEPTH OF 1-1/2 INCHES FOR THE ENTIRE LENGTH OF THE EXCAVATION. THE PLANED AREA SHALL BE THOROUGHLY CLEANED AND DRY, THEN TACKED USING ITEM 407 TACK COAT MATERIAL PRIOR TO PLACING AND COMPACTING APPROVED ASPHALT CONCRETE WITH A PAVER IN ACCORDANCE WITH CURRENT CITY STANDARD SPECIFICATIONS. ITEM 423 CRACK SEALING, TYPE II OR III, SHALL BE APPLIED TO EXPOSED JOINTS ONCE THE PAVING OPERATION HAS BEEN COMPLETED.

NOT ACCEPTABLE

SEE NOTE "C"

ACCEPTABLE



FOR AN EXCAVATION IN A SINGLE LANE, PERFORM A FULL-LANE-WIDTH PLANE AND REPAIR.

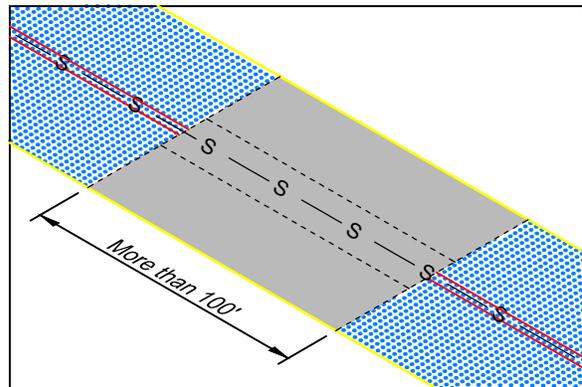
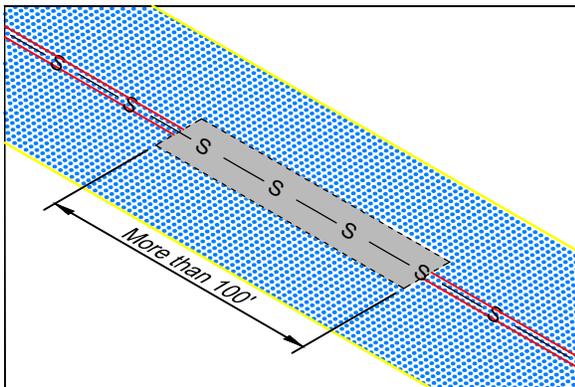
EXCAVATION EXCEEDING 100' IN LENGTH BETWEEN OR CROSSING LANES

WHEN AN EXCAVATION CROSSES LANES, ALL AFFECTED LANES SHALL REQUIRE PLANING AND RESURFACING AS DESCRIBED ABOVE. THIS WORK SHALL INCLUDE ALL OF THE PAVEMENT AREA WITHIN THE AFFECTED LANES FOR THE LIMITS OF THE EXCAVATION.

NOT ACCEPTABLE

SEE NOTE "C"

ACCEPTABLE



FOR AN EXCAVATION IN MULTIPLE LANES, PERFORM A FULL-LANE-WIDTH PLANE AND REPAIR FOR ALL IMPACTED LANES.

LEGEND

-  EXISTING PAVEMENT
-  NEW PAVEMENT REPAIR

NOTE:
EXCAVATIONS ARE CONCEPTUAL ONLY. SEE DETAILED CROSS SECTION AND PROFILE SHEETS FOR CONSTRUCTION PROCEDURES AND WIDTHS.

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ACCEPTABLE UTILITY CUT REPAIRS

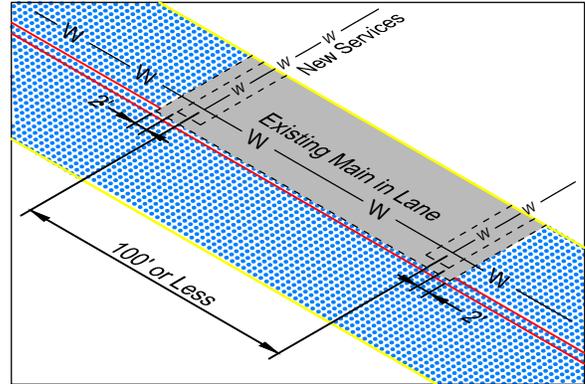
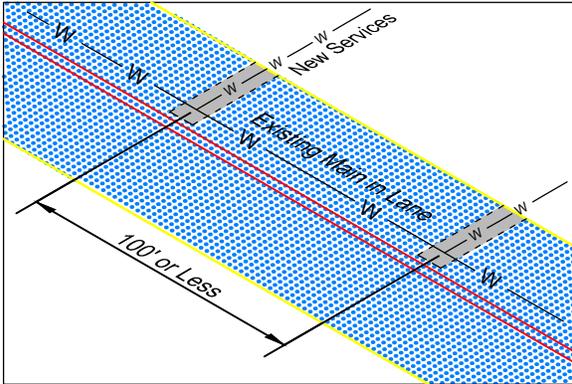
UTILITY EXCAVATIONS CROSSING ONE LANE WITHIN 100'

WHEN EXCAVATION WORK FOR LATERALS CROSSES A LANE AT A FREQUENCY OF 2 OR MORE LATERAL EXCAVATIONS WITHIN 100 FEET OF EACH OTHER, THE REPAIR SHALL INCLUDE ITEM 254 PAVEMENT PLANING FOR THE FULL LANE WIDTH TO A DEPTH OF 1- 1/2 INCHES AND FOR A MINIMUM OF 2 FEET BEYOND THE FURTHEST LATERAL EXCAVATIONS. THE PLANED AREA SHALL BE THOROUGHLY CLEANED AND DRY, THEN TACKED USING ITEM 407 TACK COAT MATERIAL PRIOR TO PLACING AND COMPACTING APPROVED ASPHALT CONCRETE WITH A PAVER IN ACCORDANCE WITH CURRENT CITY STANDARD SPECIFICATIONS. ITEM 423 CRACK SEALING, TYPE II OR III, SHALL BE APPLIED TO EXPOSED JOINTS ONCE THE PAVING OPERATION HAS BEEN COMPLETED.

NOT ACCEPTABLE

SEE NOTE "C"

ACCEPTABLE



FOR MULTIPLE EXCAVATIONS WITHIN 100', PERFORM A FULL-LANE-WIDTH PLANE AND REPAIR.

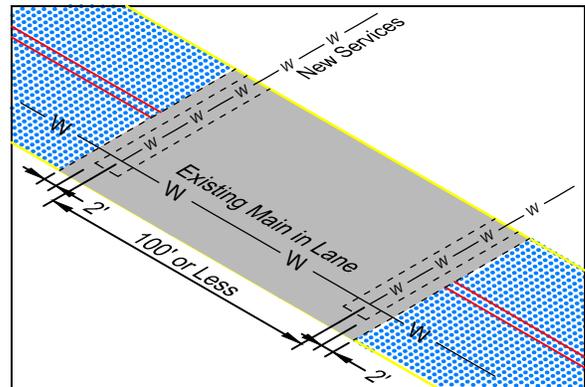
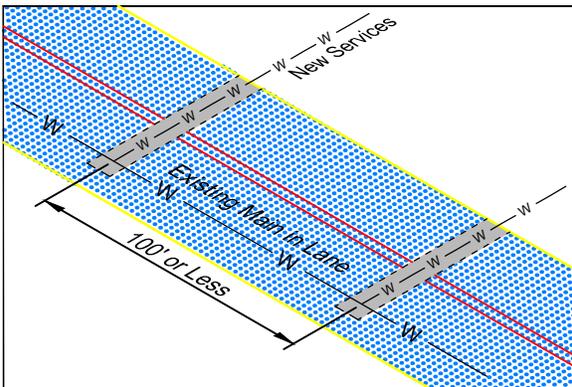
UTILITY EXCAVATIONS CROSSING MULTIPLE LANES WITHIN 100'

WHEN EXCAVATION WORK CROSSES MULTIPLE LANES, ALL AFFECTED LANES SHALL REQUIRE PLANING AND RESURFACING AS DESCRIBED ABOVE. THIS WORK SHALL INCLUDE ALL OF THE PAVEMENT AREA WITHIN THE AFFECTED LANES FOR THE LIMITS OF THE LATERAL EXCAVATIONS.

NOT ACCEPTABLE

SEE NOTE "C"

ACCEPTABLE



FOR MULTIPLE EXCAVATIONS WITHIN 100' IN MULTIPLE LANES, PERFORM A FULL-LANE-WIDTH PLANE AND REPAIR FOR ALL IMPACTED LANES.

LEGEND

-  EXISTING PAVEMENT
-  NEW PAVEMENT REPAIR

NOTE:
EXCAVATIONS ARE CONCEPTUAL ONLY. SEE DETAILED CROSS SECTION AND PROFILE SHEETS FOR CONSTRUCTION PROCEDURES AND WIDTHS.

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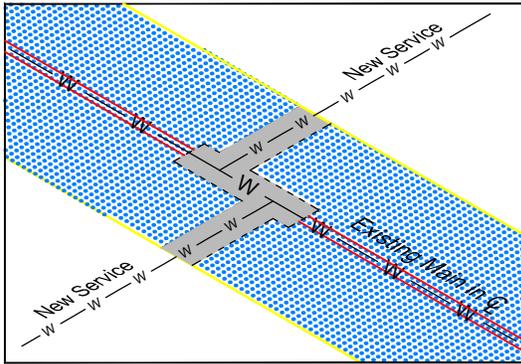
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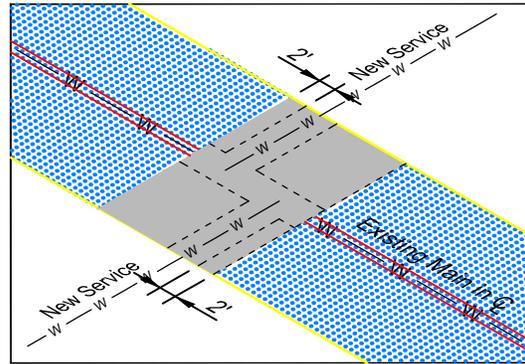
ACCEPTABLE UTILITY CUT REPAIRS

SEE NOTE "C"

NOT ACCEPTABLE

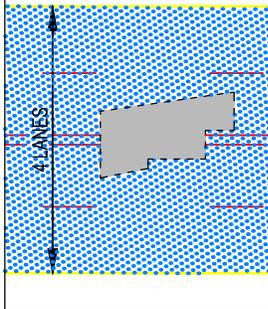


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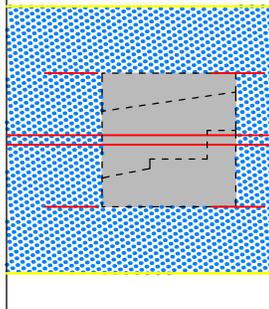


IRREGULAR SHAPES - SEE NOTE "L"

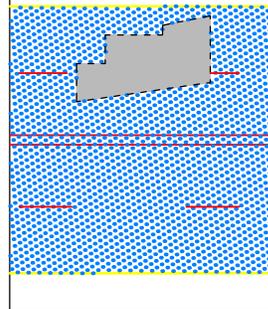
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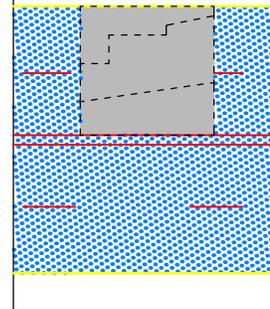
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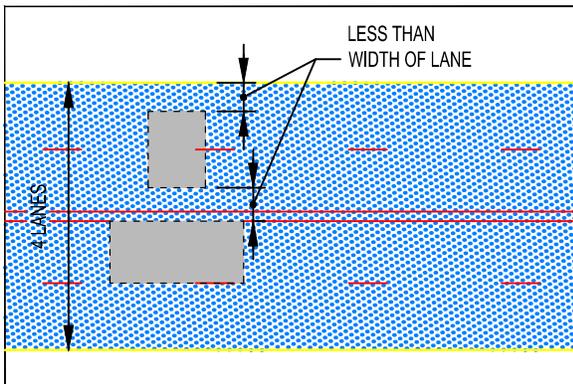
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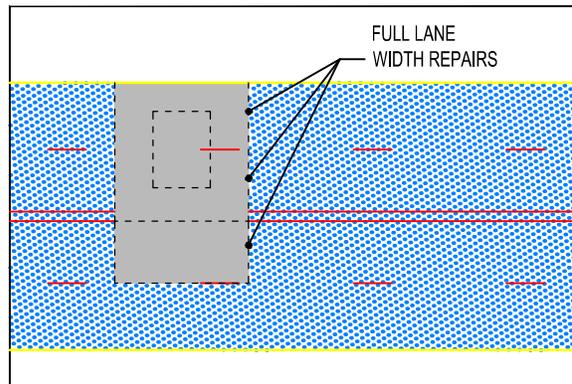
ACCEPTABLE



NOT ACCEPTABLE



ACCEPTABLE



LEGEND

-  EXISTING PAVEMENT
-  NEW PAVEMENT REPAIR

NOTE:
EXCAVATIONS ARE CONCEPTUAL ONLY. SEE DETAILED CROSS SECTION AND PROFILE SHEETS FOR CONSTRUCTION PROCEDURES AND WIDTHS.

PAVEMENT & UTILITY CUT REPAIR STANDARDS

CITY OF COLUMBUS, OHIO
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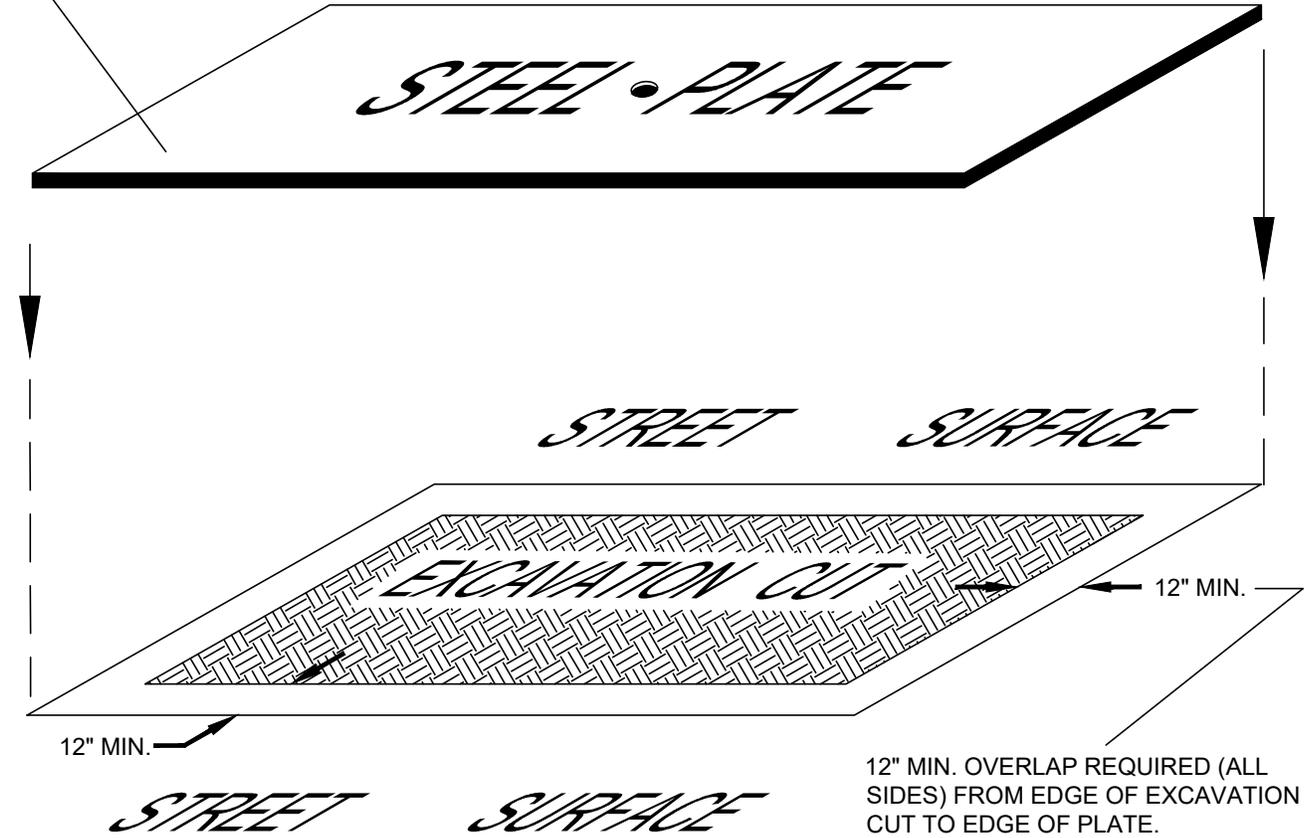
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1. OWNER'S NAME.
2. A 24 HOUR EMERGENCY CONTACT PHONE NUMBER.



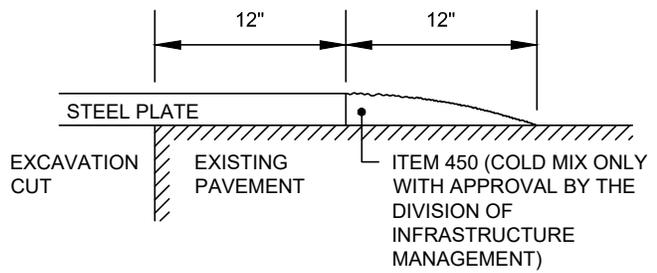
12" MIN. OVERLAP REQUIRED (ALL SIDES) FROM EDGE OF EXCAVATION CUT TO EDGE OF PLATE.

ALL STEEL PLATES MUST HAVE THE FOLLOWING INFORMATION CLEARLY AND LEGIBLY 'ETCHED' INTO THEIR TOP SURFACE:

1. OWNER'S NAME.
2. A 24 HOUR EMERGENCY CONTACT PHONE NUMBER.
3. CONTACT CITY OF COLUMBUS DIVISION OF INFRASTRUCTURE MANAGEMENT TO REPORT LOCATION OF STEEL PLATE (614) 645-5550

MINIMUM THICKNESS OF STEEL PLATES	
SIZE OF PLATE	THICKNESS
4' x 4'	1/2"
4' x 6'	3/4"
LARGER	1"

NO STEEL PINS ARE PERMITTED.
SEE SHEET 13 FOR SIGNING REQUIREMENTS.



STEEL PLATE REQUIREMENTS

PAVEMENT & UTILITY CUT REPAIR STANDARDS

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SIGNS ARE TO BE 36"x36" FOR RESIDENTIAL AND DOWNTOWN AREAS AND 48"x48" ON MULTI-LANE, HIGH SPEED (45 MPH OR GREATER) ROADWAYS.

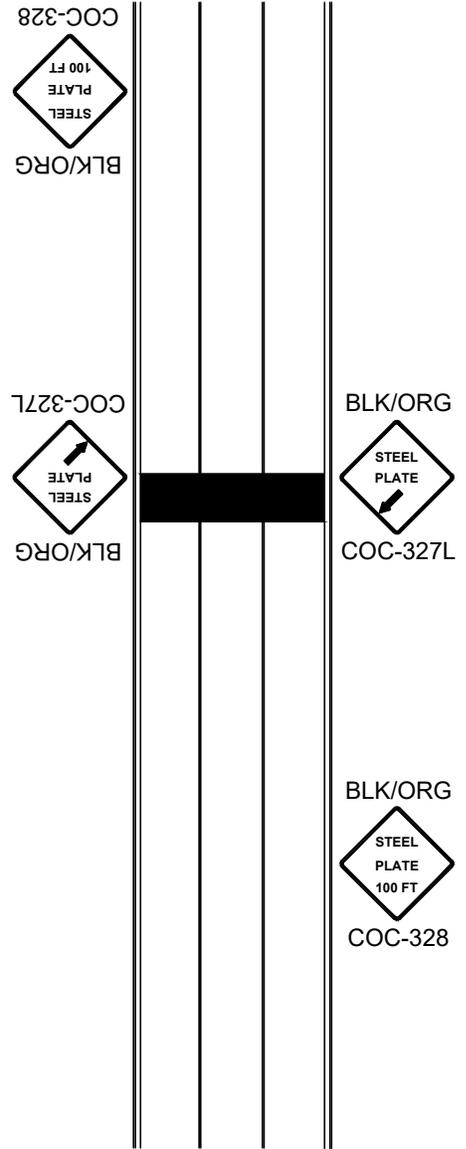
SIGN COC-327 (R/L) IS REQUIRED AT ALL PLATE LOCATIONS. SIGN COC-328 IS REQUIRED WHEN POSTED SPEED IS 35 MPH OR GREATER.

SIGNS SHOULD BE PLACED IN ALL DIRECTIONS THAT ARE AFFECTED. SIGN SPACING SHALL INCREASE TO 250' WHEN SPEED EXCEEDS 45 MPH.

SIGNS SHOULD BE DUAL MOUNTED ON MULTI-LANE, ONE-WAY ROADWAYS.

ALL SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).

SIGNS SHALL NOT BE PLACED IN A MANNER THAT WOULD BLOCK PARKING, BIKE LANES, OR RESTRICT A PEDESTRIAN FROM USING ANY SIDEWALK INCLUDING CURB RAMPS. PAR SHALL BE MAINTAINED AT ALL TIMES.



STEEL PLATE REQUIREMENTS

PAVEMENT & UTILITY
CUT REPAIR
STANDARDS

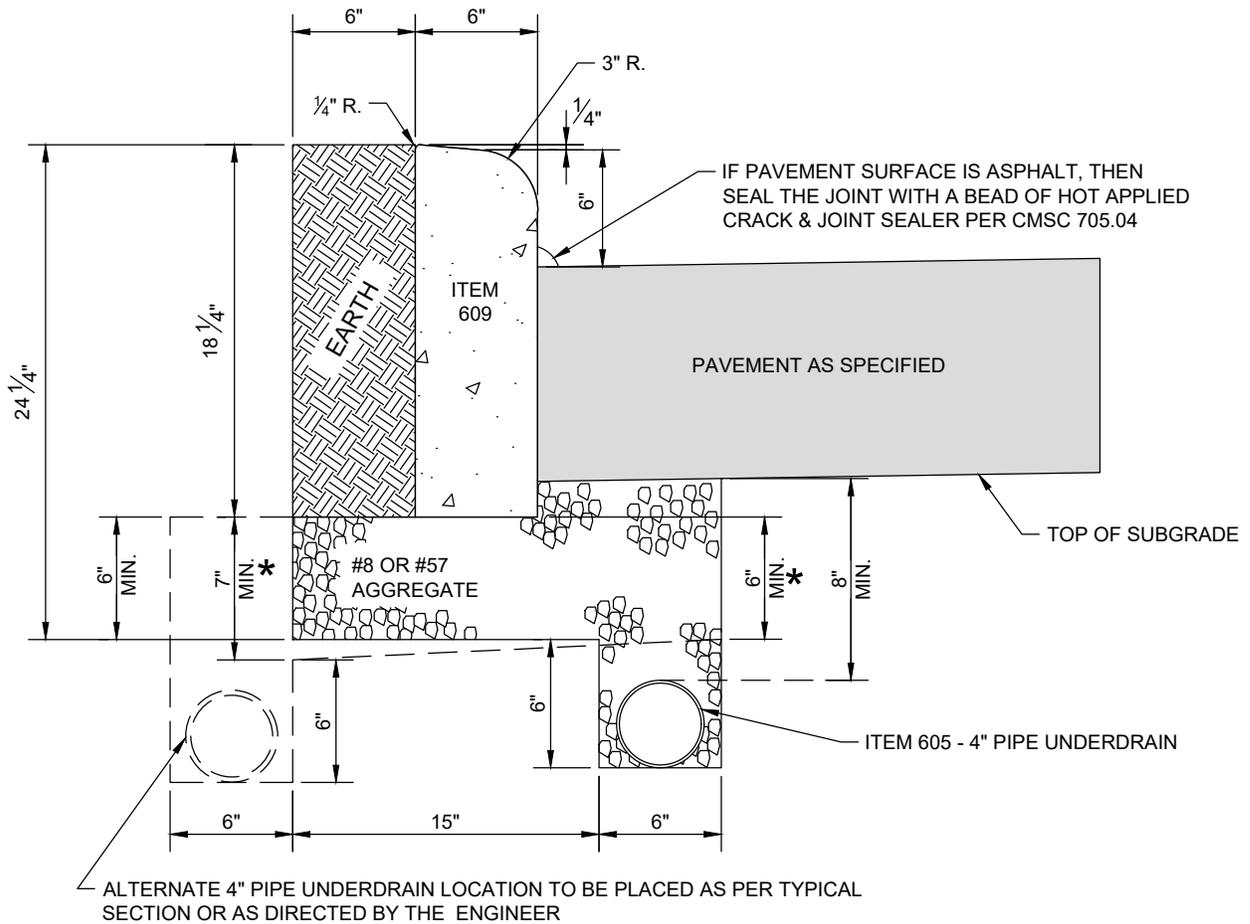
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* CURB AGGREGATE COURSE-WHERE THE ROADWAY PAVEMENT HAS AGGREGATE BASE, MATCH THE BOTTOM OF THE CURB AGGREGATE COURSE TO THE TOP OF SUBGRADE. ENSURE ROADWAY SUB BASE MEETS UNDERDRAIN AGGREGATE.

IF THE TOP OF THE SUBGRADE IS BELOW THE BOTTOM OF THE CURB, THE UNDERDRAIN SHALL BE ADJUSTED TO KEEP THE TOP OF THE UNDERDRAIN AT LEAST 8" BELOW THE TOP OF THE SUBGRADE; AGGREGATE DEPTH BETWEEN BOTTOM OF CURB AND TOP OF UNDERDRAIN MAY VARY IF THIS OCCURS.

SUBGRADE COMPACTION SHALL BE COMPLETED BEFORE UNDERDRAIN INSTALLATION.

WHEN A CURB AND GUTTER INLET IS INSTALLED, THE TOP OF THE CASTING SHALL BE THE SAME AS THE TOP OF CURB ELEVATION. THE EDGE OF PAVEMENT ELEVATION SHALL BE 3/8" HIGHER THAN THE GRATE WHEREVER THEY MEET.

FOR REPLACEMENT WORK, THE CURB SHALL BE REMOVED AT AN EXISTING JOINT OR NO CLOSER THAN 5 FEET FROM AN EXISTING JOINT.

1/2" EXPANSION MATERIAL WILL BE INSTALLED BEHIND THE CURB WHEN A CONCRETE WALK, DRIVE, OR OTHER CONCRETE ITEM IS ADJOINING IT.

UNDERDRAIN IS NOT REQUIRED WHEN CURB IS ALONG CONCRETE MEDIAN.

0.74 C.F. CONCRETE PER L.F.

CURB, STRAIGHT 18"

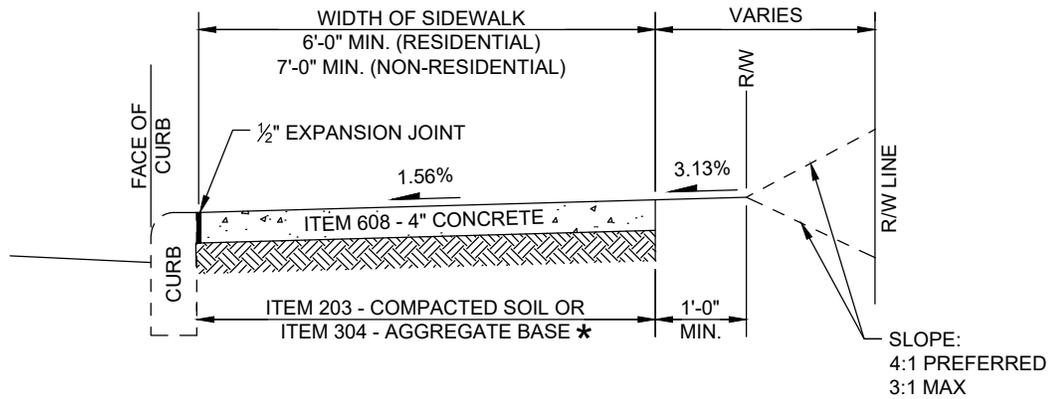
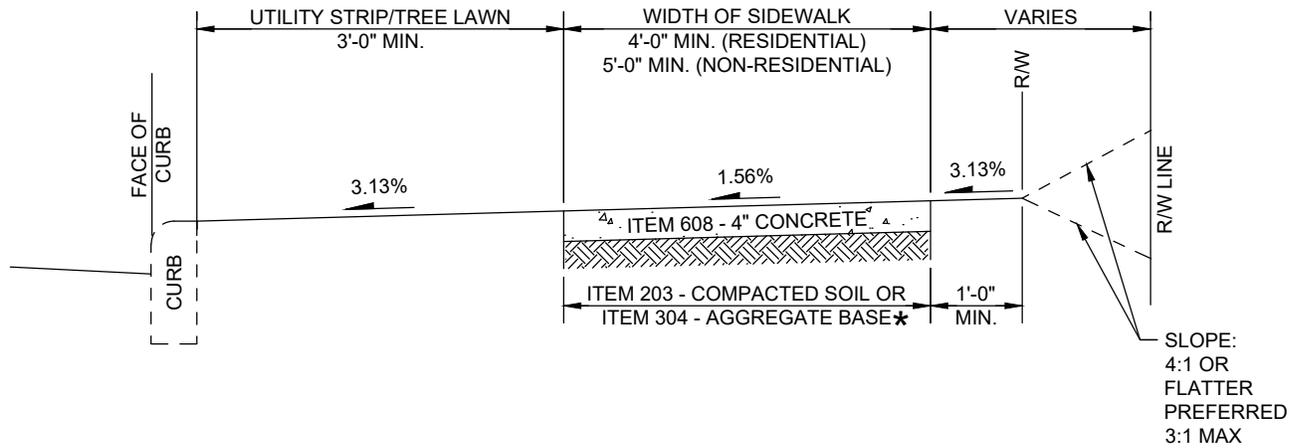
CITY OF COLUMBUS, OHIO
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WHERE SIDEWALKS ABUT DRIVEWAYS OR ALLEY APPROACHES, THE CONCRETE THICKNESS OF THE WALK SHALL EQUAL THE THICKNESS OF THE APPROACH (6" MINIMUM) FOR A DISTANCE OF ONE (1) FULL PANEL OR MINIMUM 5 FEET. SEE STANDARD DRAWING OF THE APPLICABLE DRIVEWAY OR ALLEY.

WHERE NEW WALK ABUTS ADJOINING WALK, SAWCUT EXISTING WALK TO NEAREST JOINT AND INSTALL EXPANSION JOINT.

EXPANSION JOINT LOCATION AND SPACING PER ITEM 608.03.

WATER AND UTILITY BOXES IN THE SIDEWALK AREA SHALL BE ADJUSTED FLUSH WITH FINAL SURFACE.

ROOF DRAINS SHALL BE EXTENDED UNDER THE SIDEWALK AND THROUGH THE CURB. SEE STD DWG 2320.

ITEM NUMBERS REFER TO THE CITY OF COLUMBUS CMSC, CURRENT EDITION. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE SPECIFICATIONS.

* #57 AGGREGATE MAY BE USED FOR REPLACEMENT WORK.

SIDEWALK

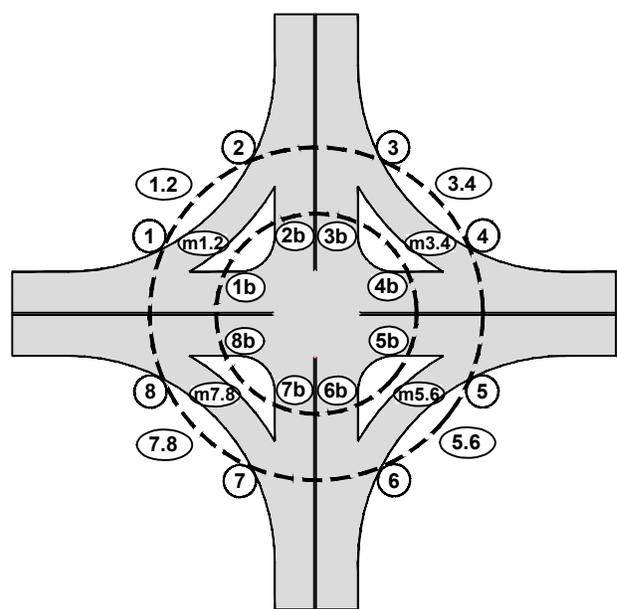
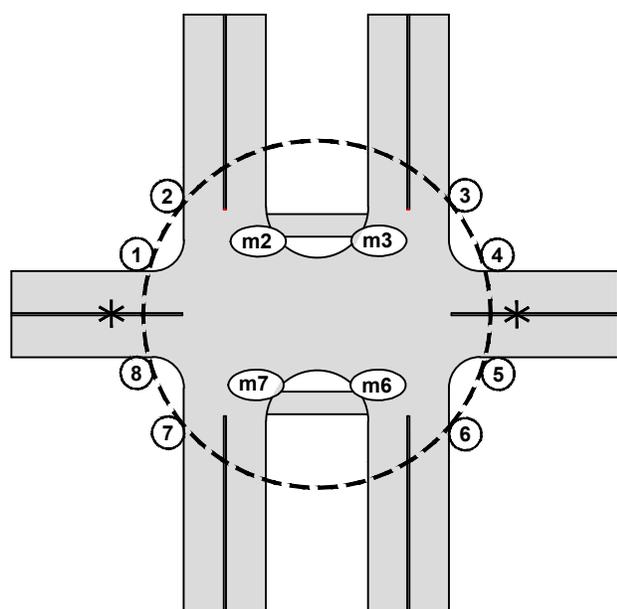
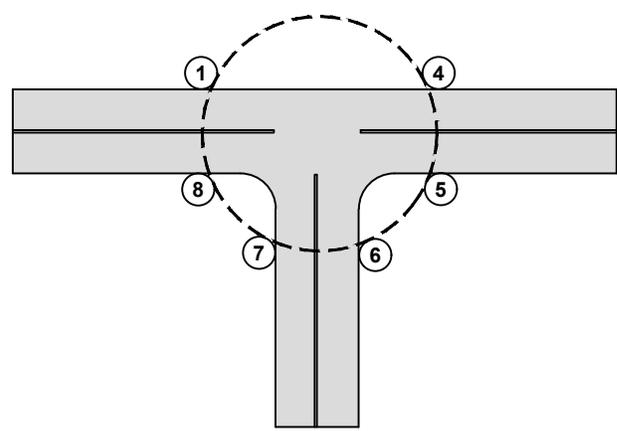
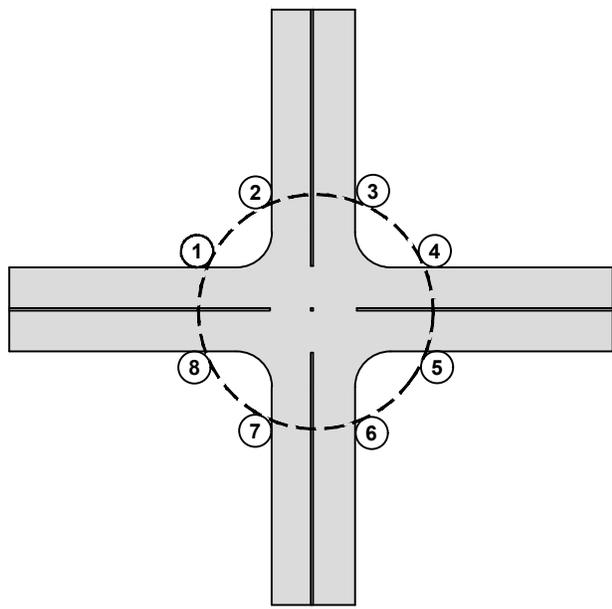
CITY OF COLUMBUS, OHIO
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CITY ENGINEER

04/30/18

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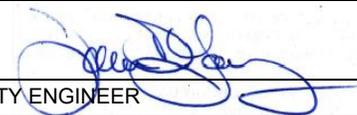
ALL NUMBERING BEGINS FROM THE NORTHWEST CORNER AND GOES CLOCKWISE. EACH CORNER HAS ITS SPECIFIC NUMBER THAT SHALL BE USED IF CURB RAMPS ARE IN THESE LOCATIONS.

* MEDIAN RAMPS ON THE WEST AND/OR EAST LEGS WOULD BE M1, M8, AND M4, M5 RESPECTIVELY.

INTERSECTION CURB RAMP NUMBERING SYSTEM

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2319


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GENERAL NOTES, CURB RAMPS

1. CURB RAMPS SHALL BE INSTALLED PER STD DWGS 2300, 2319, CMSC 608, AND DPS ADA RULES AND REGULATIONS.
2. MATERIAL: THE RAMP PANEL AND FLARED SIDES SHALL BE CONCRETE.
3. RAMP TYPES ARE CATEGORIZED BELOW IN TIERS BY REQUIRED ORDER OF USE. LOCATING THE RAMP AS CLOSE AS POSSIBLE TO THE INTERSECTION FOLLOWING THE CURB RAMP DESIGN BOUNDARY CONTAINED IN THE ADA RULES AND REGULATIONS IS THE FIRST PRIORITY. THE DESIGNER SHALL NOT USE A LOWER TIERED RAMP WITHOUT FIRST DETERMINING AND HAVING JUSTIFICATION THAT THE UPPER TIER RAMPS ARE NOT CONSTRUCTIBLE.

CITY OF COLUMBUS RAMP TYPE HIERARCHY

TIER 1 (THESE PERPENDICULAR RAMPS SHOULD BE UTILIZED WHENEVER POSSIBLE.)

- TYPE D
- TYPE C
- TYPE A

TIER 2 (PARALLEL RAMPS SHOULD ONLY BE USED DUE TO RIGHT OF WAY (ROW) OR OTHER SPACE CONSTRAINTS WHERE A TIER 1 RAMP CANNOT BE USED.)

- TYPE P-6 (6' OF ROW AVAILABLE)
- TYPE P-7 (7' OF ROW AVAILABLE)
- TYPE P-5 (5' OF ROW AVAILABLE)
- TYPE P-4 (4' OF ROW AVAILABLE)

TIER 3 (TIER 3 RAMPS CAN ONLY BE USED WITH WRITTEN APPROVAL BY THE CITY ENGINEER OR DESIGNEE. TIER 3 RAMPS SHALL BE IDENTIFIED IN THE DESIGN SCOPE OR APPROVAL REQUESTED BY THE DESIGNER JUSTIFYING THAT THIS RAMP TYPE IS NECESSARY.)

- TYPE J (MODIFIED ALLEY RAMP), USE SHOULD BE LIMITED DUE TO DRAINAGE CONCERNS
- RADIAL RAMPS
- SINGLE SHARED RAMPS

SPECIALTY RAMPS (SHALL ONLY BE USED FOR THE LISTED SITUATION, OR WRITTEN APPROVAL BY THE CITY ENGINEER OR DESIGNEE.)

- TYPE G - ONLY TO BE USED ON ALLEY CROSSINGS
 - TYPE H - ONLY TO BE USED ON ALLEY CROSSINGS
 - TYPE L-1 - ONLY FOR MEDIAN CROSSINGS
 - TYPE L-2 - ONLY FOR MEDIAN CROSSINGS
 - PEDESTRIAN PADS - USED FOR ACCESS TO PUSHBUTTONS WHERE THERE IS NO EXISTING SIDEWALK. THE INTENT IS TO PROVIDE ACCESS TO CROSS THE INTERSECTION IN BOTH DIRECTIONS WITHOUT ENTERING THE STREET TO ACCESS TO OTHER CROSSING. THE FOLLOWING IS THE ORDER OF PREFERENCE ON PEDESTRIAN PADS:
 1. PP-1 TWO CONNECTED RAMPS WITH UTILITY STRIP
 2. PP-2 TWO CONNECTED RAMPS WITH SIDEWALK AGAINST CURB
 3. PP-3 USED AS SINGLE SHARED RAMP THAT CAN ACCESS BOTH CROSSWALK LEGS AND THE PUSHBUTTON
 4. PP-3 USED TO ONLY ACCESS THE LEG OF THE INTERSECTION CONTROLLED BY THE PUSHBUTTON
4. RAMP RUNNING SLOPE: THE RUNNING SLOPE SHALL BE NO GREATER THAN 7.69%.
 5. ALL JOINTS BETWEEN NEW AND EXISTING MATERIALS SHALL BE FLUSH.
 6. LANDINGS:
 - LANDINGS SHALL HAVE A MAXIMUM 1.56% SLOPE IN ALL DIRECTIONS FOR ALL CURB RAMP TYPES.
 - A PARALLEL RAMP, CONSTRAINED ON TWO (2) SIDES, E.G., TYPE P-7, SHALL HAVE A LANDING 5-FT WIDE BY 5-FT DEEP A PARALLEL RAMP, CONSTRAINED ON ONE (1) SIDE, E.G., TYPES P-4, 5, & 6, SHALL HAVE A LANDING NO LESS THAN 4-FT MINIMUM BY 5-FT. THE 5-FT DIMENSION SHALL BE PROVIDED AS SHOWN IN THESE STANDARD DRAWINGS.

<h1>CURB RAMP GENERAL NOTES</h1>	
CITY OF COLUMBUS, OHIO DEPARTMENT OF PUBLIC SERVICE DIVISION OF DESIGN AND CONSTRUCTION	STD DWG 2319
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- ALL PERPENDICULAR RAMPS SHALL HAVE A LANDING NO LESS THAN 4-FT MINIMUM BY 4-FT. A PERPENDICULAR RAMP THAT IS CONSTRAINED AT THE BACK OF SIDEWALK SHALL HAVE A LANDING 4-FT BY 5-FT. THE 5-FT DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF RAMP RUN, AS SHOWN IN THESE STANDARD DRAWINGS.
 - LANDING AT INTERSECTING SIDEWALKS - WHEREVER SIDEWALKS INTERSECT, THERE SHALL BE A LANDING.
7. STREET COUNTER SLOPE: THE COUNTER SLOPE AT THE BASE OF THE RAMP SHALL BE A MAXIMUM OF 5% FOR A MINIMUM OF 2-FT.
 8. CLEAR SPACE: AT MARKED CROSSINGS THE RAMP AND STREET CLEAR SPACE MUST BE FULLY CONTAINED WITHIN THE MARKED CROSSWALK. AT UNMARKED CROSSINGS THE RAMP AND CLEAR MUST BE WITHIN THE CURB RAMP DESIGN BOUNDARY.
 9. SURFACES: RAMP, FLARE, AND LANDING SURFACES MUST BE STABLE AND SLIP RESISTANT. RAMPS SHALL BE BROOM FINISHED, TRANSVERSE TO THE DIRECTION OF TRAVEL. GRATINGS, VALVE BOXES, AND UTILITY BOXES SHALL NOT BE LOCATED IN THE RAMP OR LANDING.
 10. DETECTABLE WARNINGS: DETECTABLE WARNINGS SHALL BE INSTALLED ACCORDING TO THESE STANDARD DRAWINGS, CMSC 608, AND DPS ADA RULES AND REGULATIONS.
 11. CURB WALLS MAY BE NECESSARY FOR CURB RAMP CONSTRUCTION WHERE SPACE RESTRICTION DO NOT ALLOW FOR GRADING WITHIN ROW AT A 3:1 SLOPE OR FLATTER. THE MAXIMUM HEIGHT OF 6" THICK, NON-REINFORCED CURB WALL IS 12" ABOVE THE SIDEWALK SURFACE. THE BURIED PORTION OF THE NON-REINFORCED CURB WALL SHALL BE EQUAL TO THE EXPOSED REVEAL. RETAINING EMBANKMENT TO A HEIGHT OF MORE THAN 12" ABOVE THE SIDEWALK WILL REQUIRE A DESIGNED RETAINING WALL OR CELLULAR WALL.
 12. RAMPS MUST BE CONSTRUCTED TO ALLOW FOR POSITIVE DRAINAGE. THE RAMP ITSELF SHALL NOT HOLD EXCESS WATER AND THE ADJACENT PAVEMENT SHALL NOT BE ALTERED TO INHIBIT FLOW OF WATER. IF AN EXISTING CONSTRAINT PREVENTS BUILDING THE RAMP AND ADJACENT AREA WITH POSITIVE DRAINAGE IT MUST BE BROUGHT TO THE CITY'S ATTENTION PRIOR TO CONSTRUCTION AND FINAL DESIGN APPROVED BY THE CITY.

CURB RAMP GENERAL NOTES

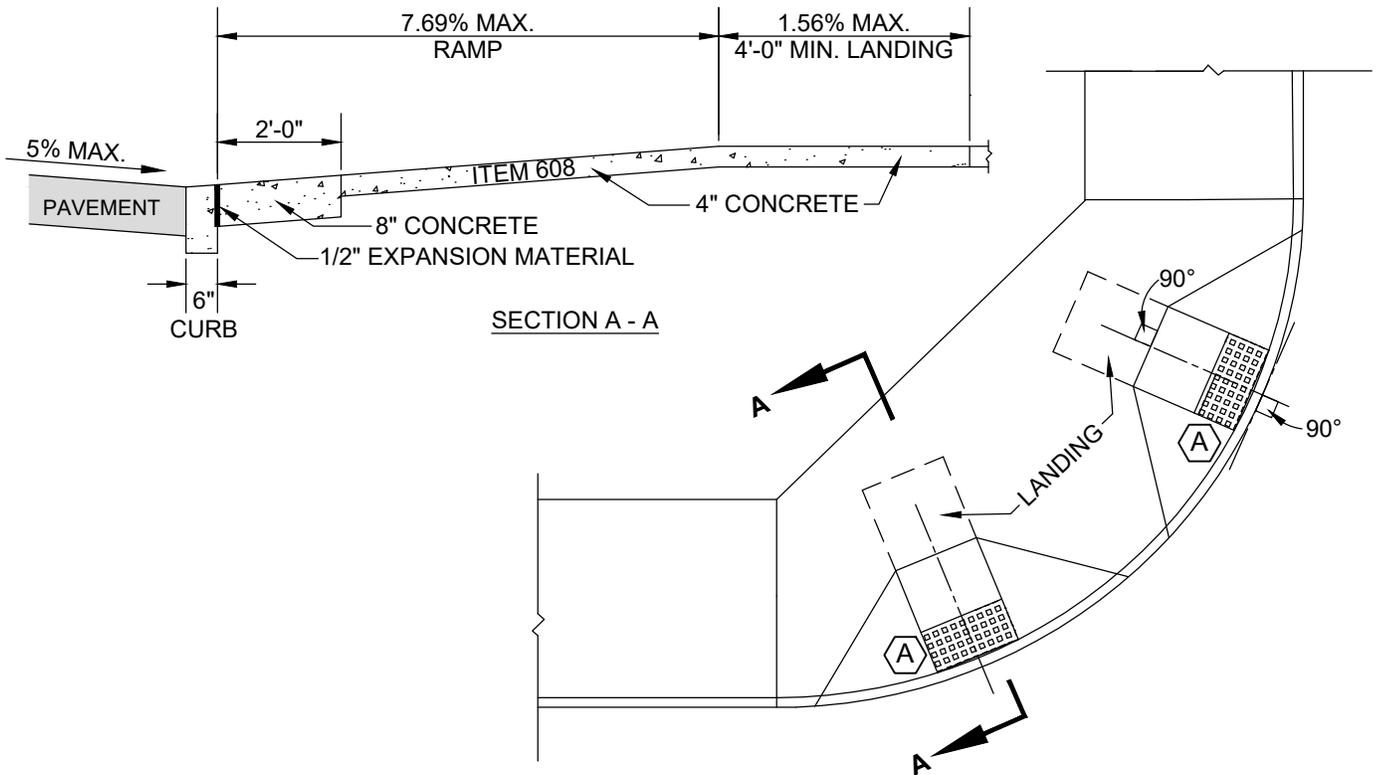
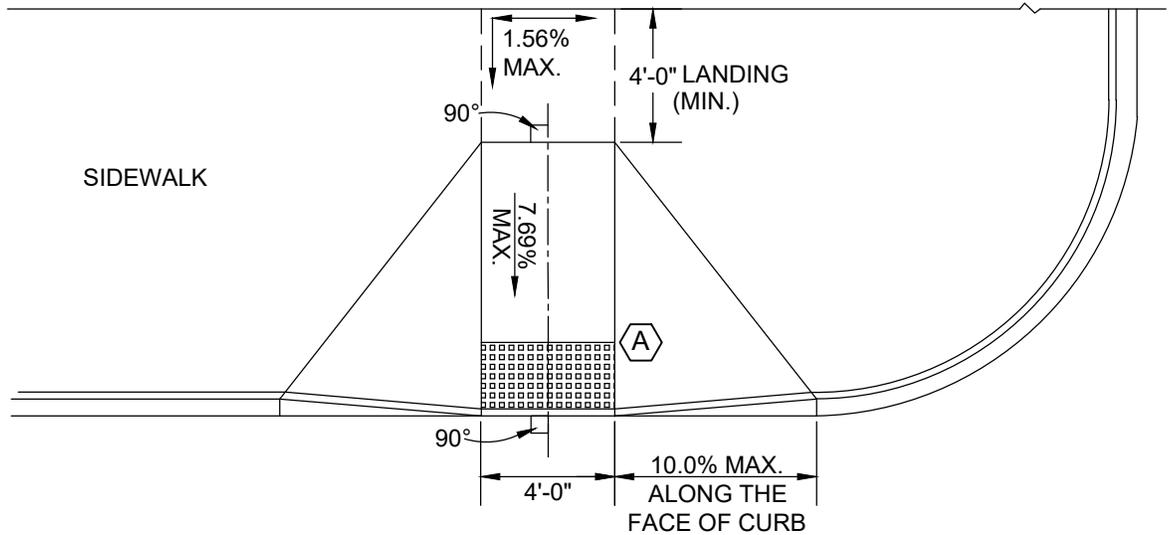
CITY OF COLUMBUS, OHIO
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CODED NOTES:

(A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

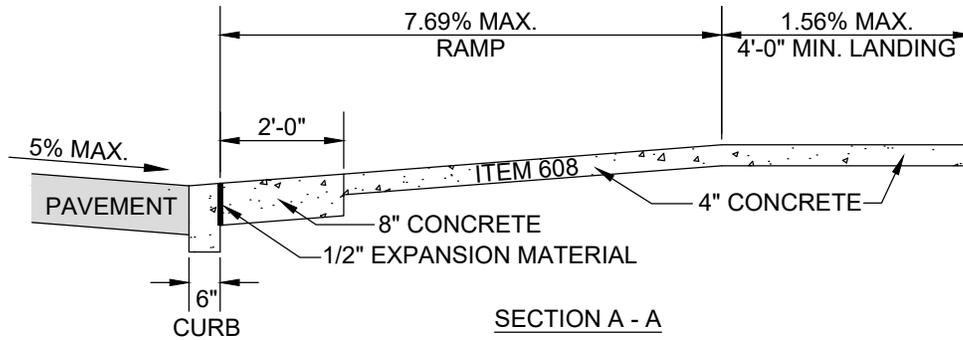
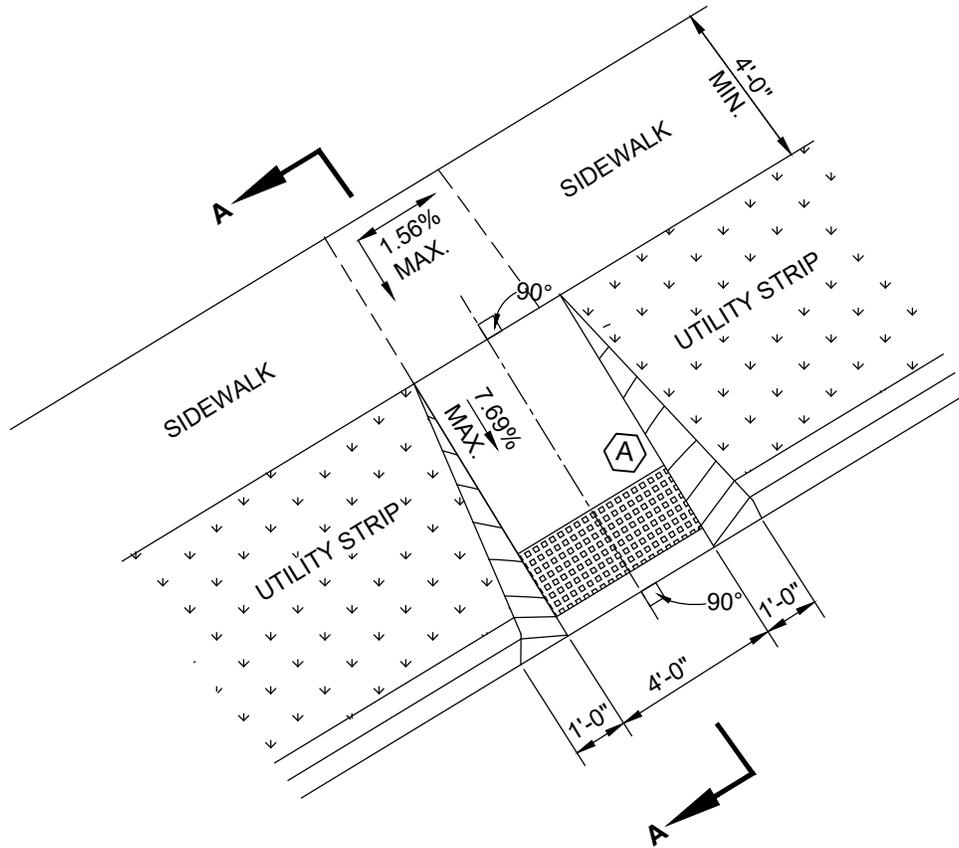
CURB RAMP TYPE A

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CODED NOTES:

(A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

CURB RAMP TYPE C

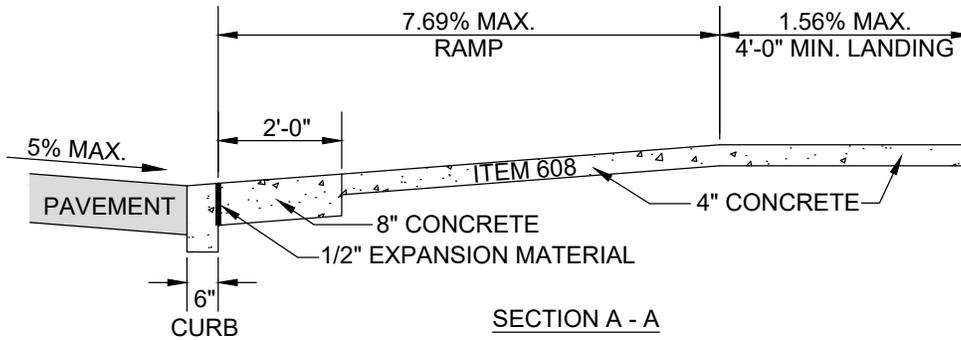
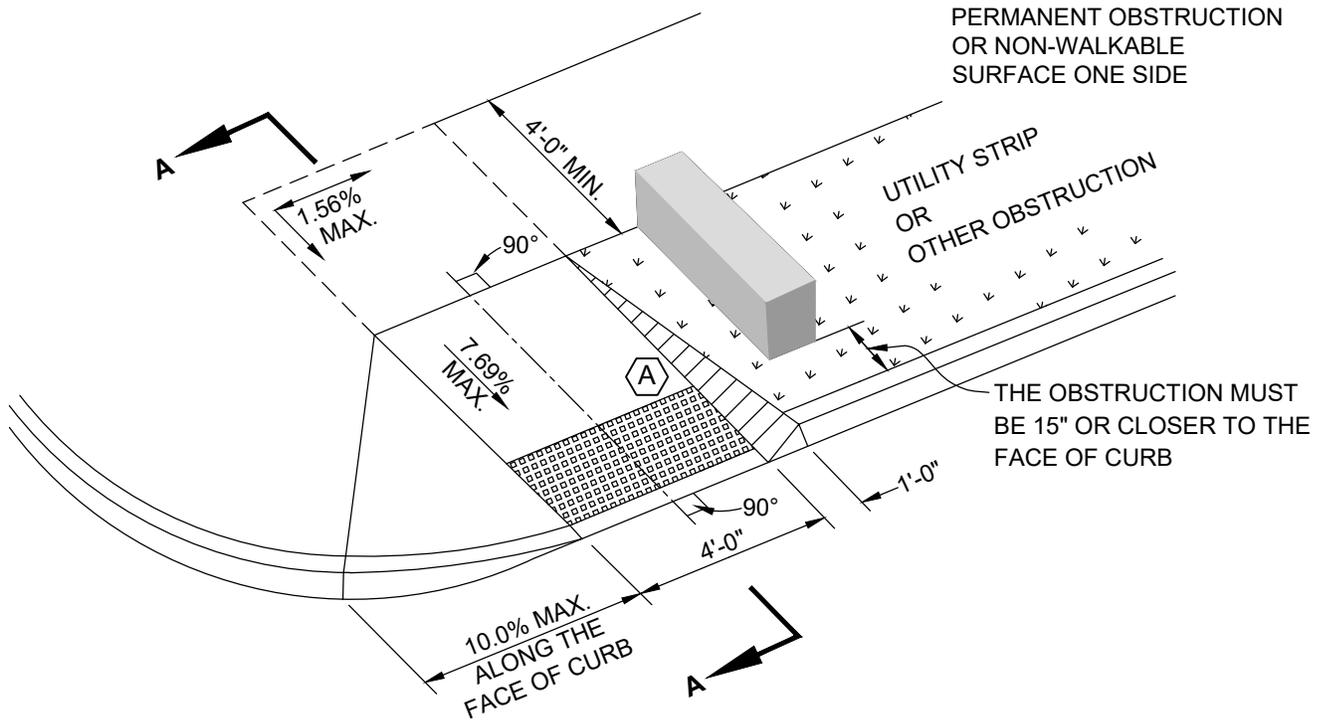
CITY OF COLUMBUS, OHIO
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CODING NOTES:

(A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

CURB RAMP TYPE D

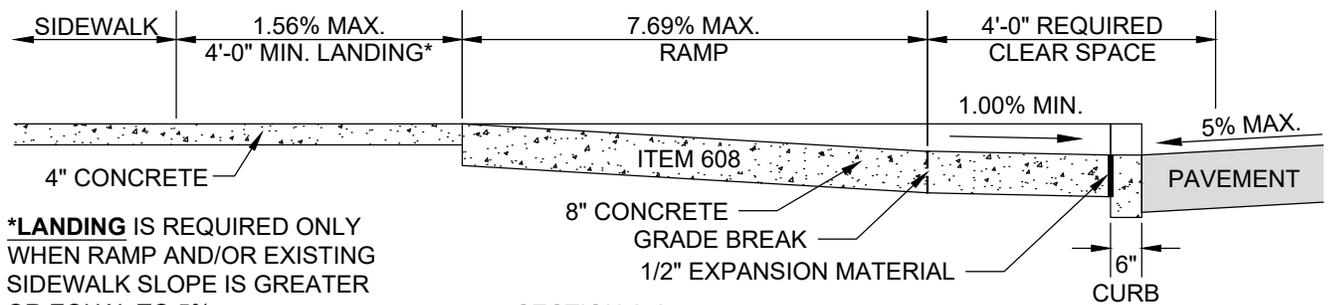
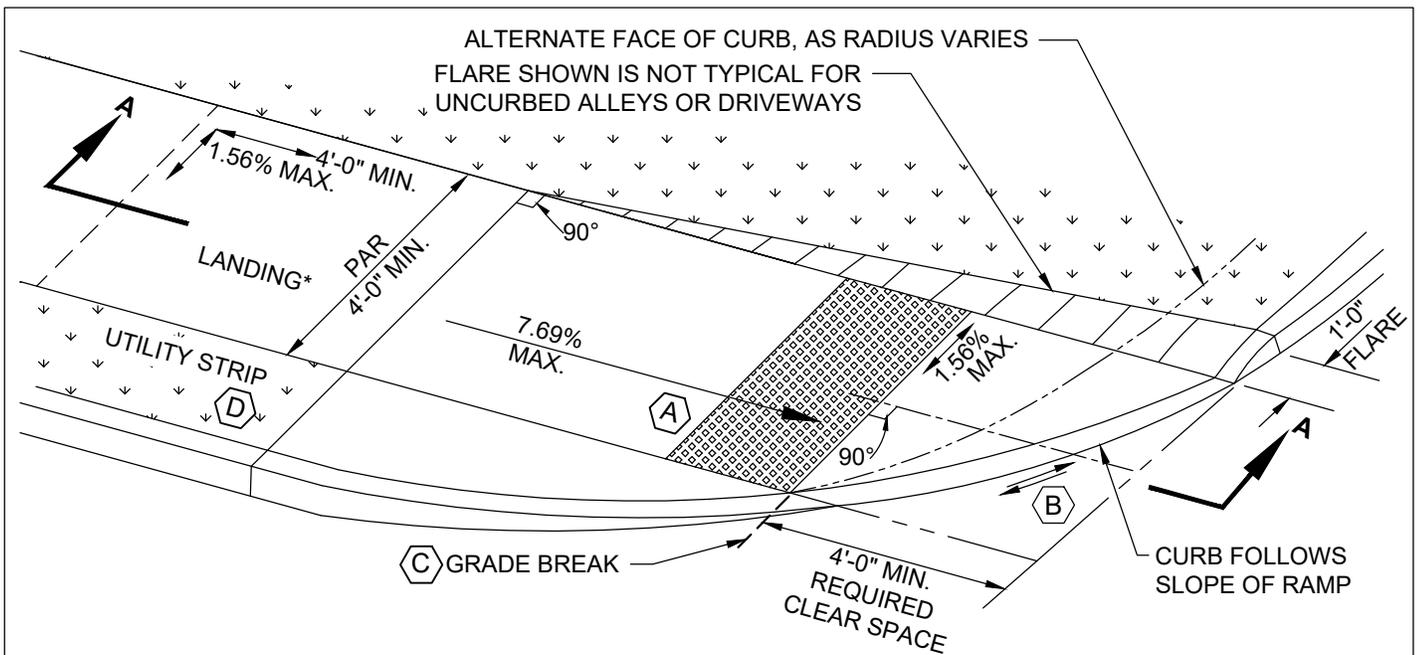
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*LANDING IS REQUIRED ONLY WHEN RAMP AND/OR EXISTING SIDEWALK SLOPE IS GREATER OR EQUAL TO 5%

SECTION A-A

CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS
- (B) PROVIDE POSITIVE DRAINAGE ALONG CURBLINE, SHOULD BE 1.00% MINIMUM SLOPE
- (C) WHERE THE DISTANCE FROM EITHER END OF THE BOTTOM OF THE GRADE BREAK TO THE BACK OF CURB IS GREATER THAN 5-FT, THE DETECTABLE WARNING SHALL BE PLACED AT THE BACK OF CURB
- (D) FOR THE LENGTH OF THE RAMP, THE UTILITY STRIP MAY BE REMOVED AND REPLACED WITH 8" CONCRETE (ITEM 608), PROVIDED THE UTILITY STRIP IS NO WIDER THAN 2-FT

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.
2. THE EDGE OF THE CURB WITHIN THE CLEAR SPACE SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER.

CURB RAMP TYPE H

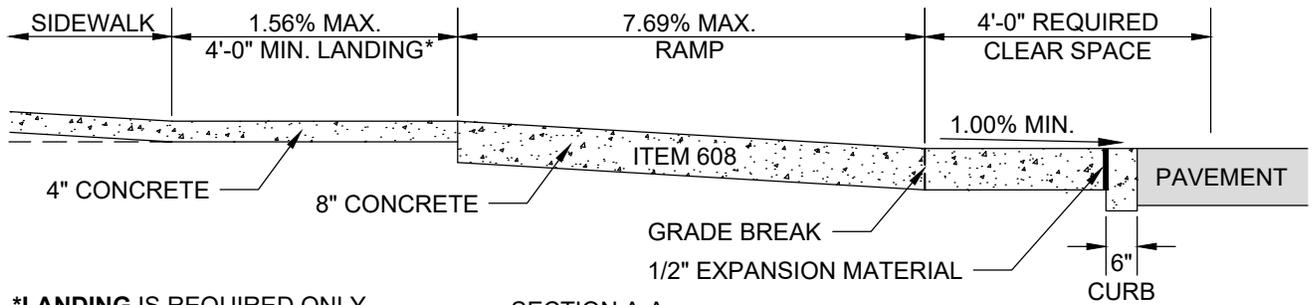
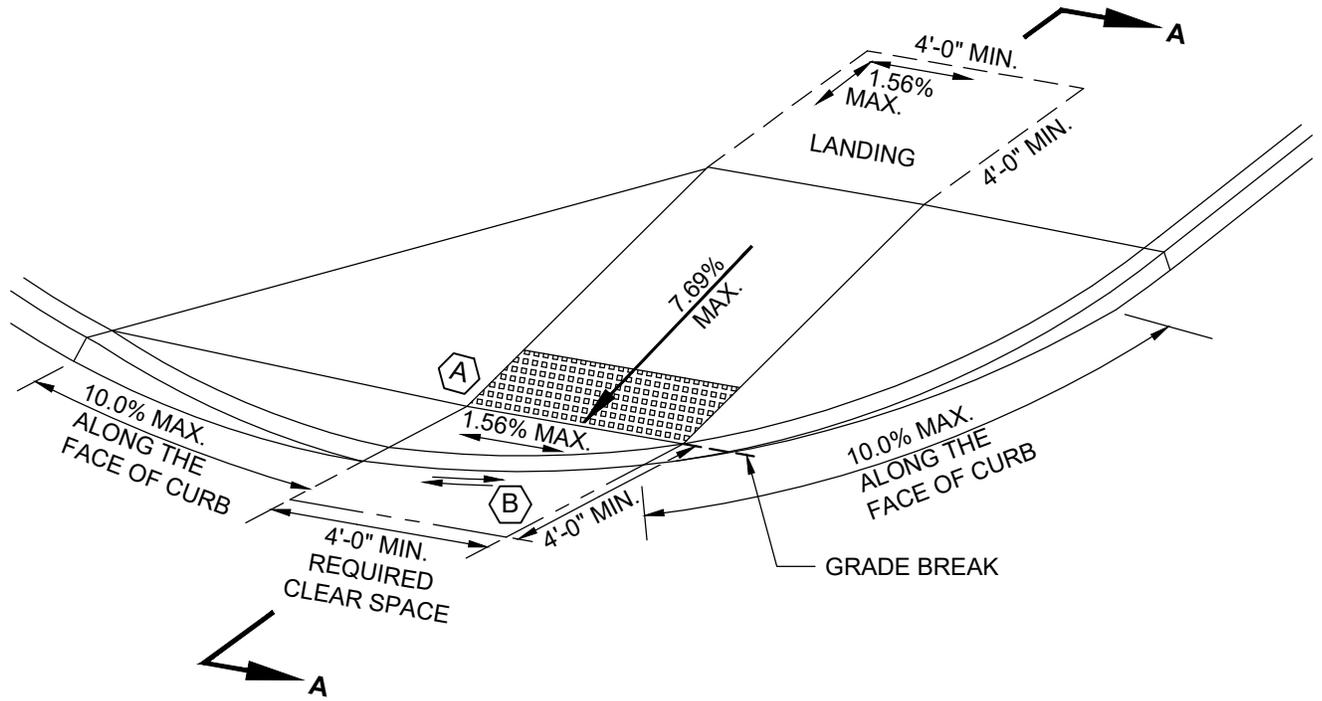
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***LANDING** IS REQUIRED ONLY WHEN RAMP AND/OR EXISTING SIDEWALK SLOPE IS GREATER OR EQUAL TO 5%

SECTION A-A

CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS
- (B) PROVIDE POSITIVE DRAINAGE ALONG CURBLINE, SHOULD BE 1.00% MINIMUM SLOPE

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.
2. THE EDGE OF THE CURB WITHIN THE CLEAR SPACE SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER.

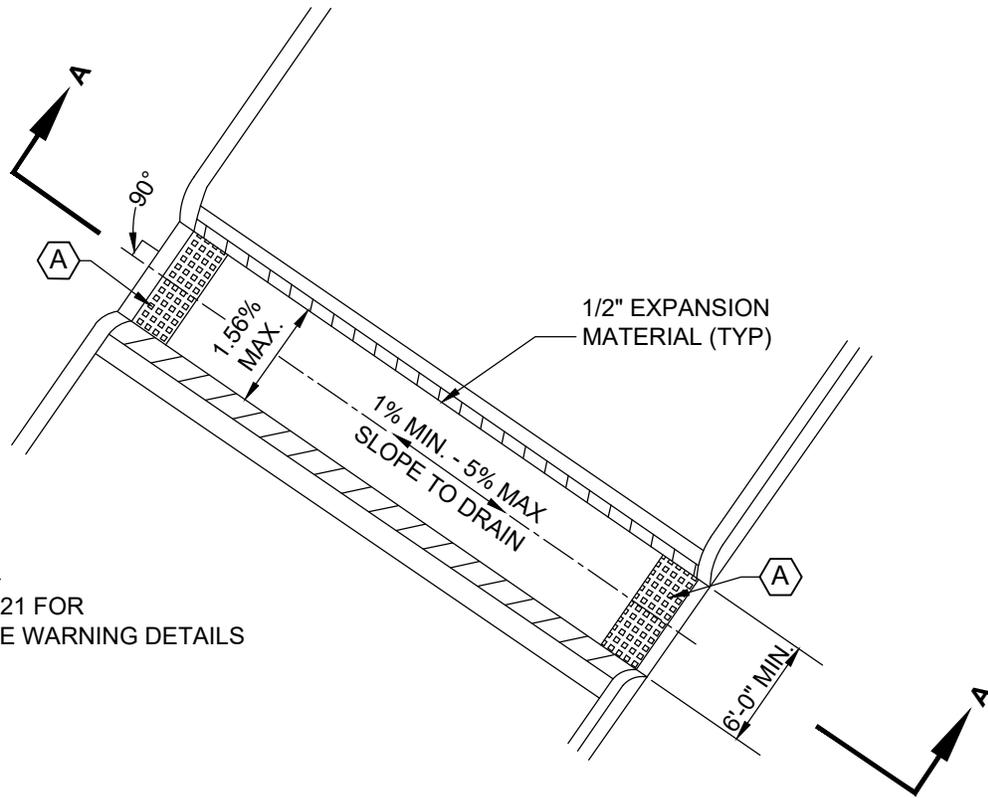
CURB RAMP TYPE J

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2319**

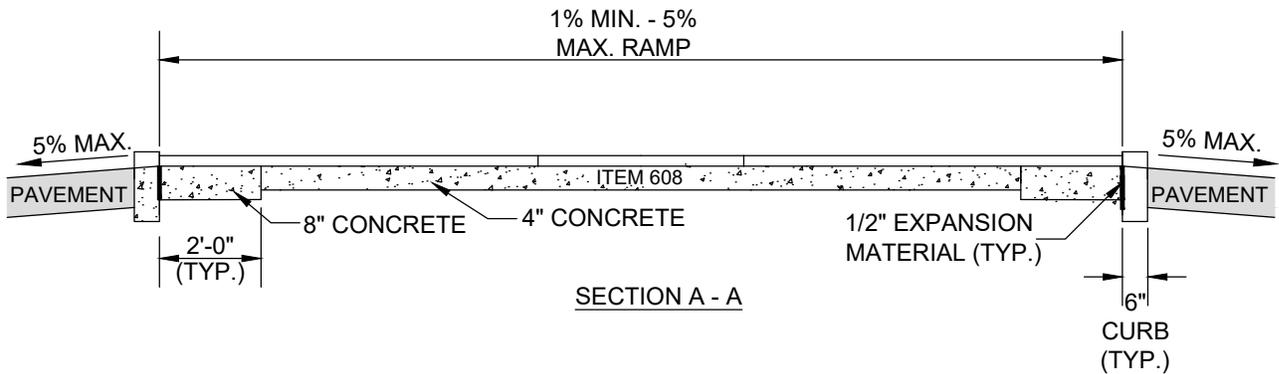
3/30/2018

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CODED NOTES:

A SEE SHEET 21 FOR
DETECTABLE WARNING DETAILS



GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.
2. RAMP L-1 SHALL BE USED IN ALL CIRCUMSTANCES WHERE NOT PROHIBITED BY DRAINAGE ISSUES. AN L-1 RAMP SHOULD NOT BE PLACED IN A WAY THAT WOULD CONVEY THE CURB FLOW OF WATER THROUGH THE MEDIAN PASSTHROUGH. WHERE THE ROADWAY CROSS-SLOPE DIRECTS WATER TOWARDS THE MEDIAN AND FLOWS THROUGH THE GUTTER LINE ADJACENT TO THE PASSTHROUGH, USE AN L-2 RAMP.
3. MEDIANS / ISLANDS WITHIN COMMERCIAL DRIVES REQUIRE DETECTABLE WARNINGS ONLY WHEN OPPOSING CURB RAMPS REQUIRE DETECTABLE WARNINGS. (SEE SHEET 21 OF 21, NOTE 1)

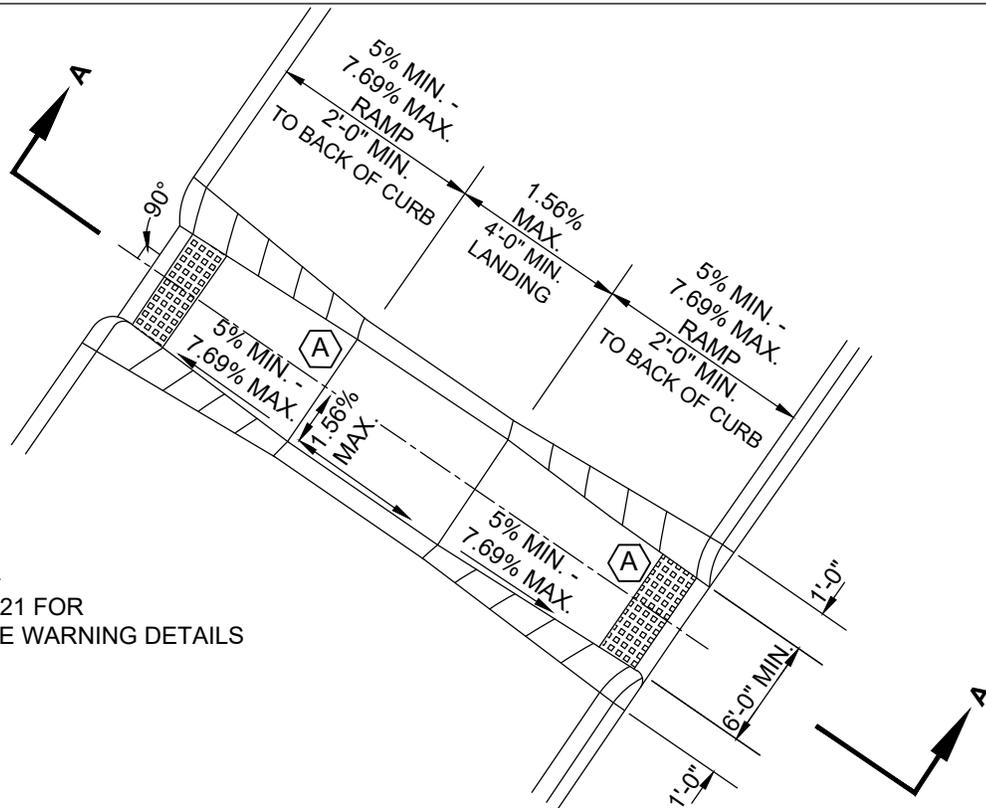
CURB RAMP TYPE L-1

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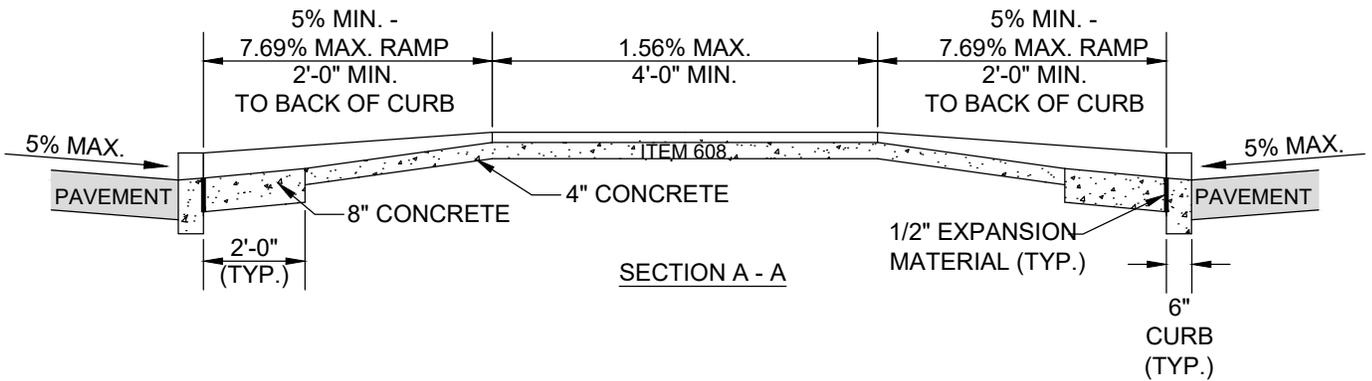
3/30/2018

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CODED NOTES:

(A) SEE SHEET 21 FOR
DETECTABLE WARNING DETAILS



GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.
2. MEDIANS / ISLANDS WITHIN COMMERCIAL DRIVES REQUIRE DETECTABLE WARNINGS ONLY WHEN OPPOSING CURB RAMPS REQUIRE DETECTABLE WARNINGS. (SEE SHEET 21 OF 21, NOTE 1).
3. TYPE L-2 RAMPS ARE ONLY TO BE INSTALLED WHEN IT IS NOT POSSIBLE TO INSTALL A TYPE L-1 RAMP DUE TO DRAINAGE ISSUES.
4. TYPE L-2 RAMPS CAN ONLY BE USED ON MEDIANS 8 FEET WIDE OR MORE.

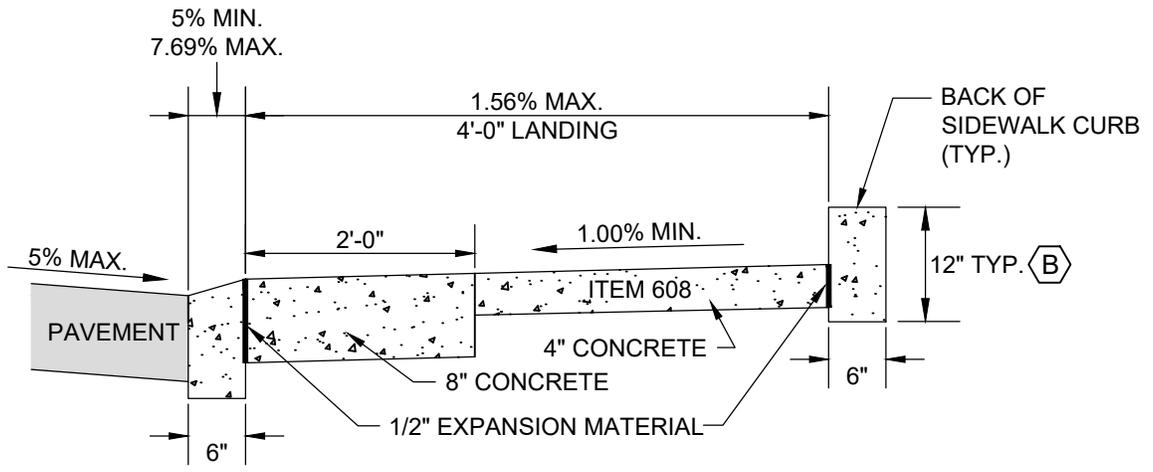
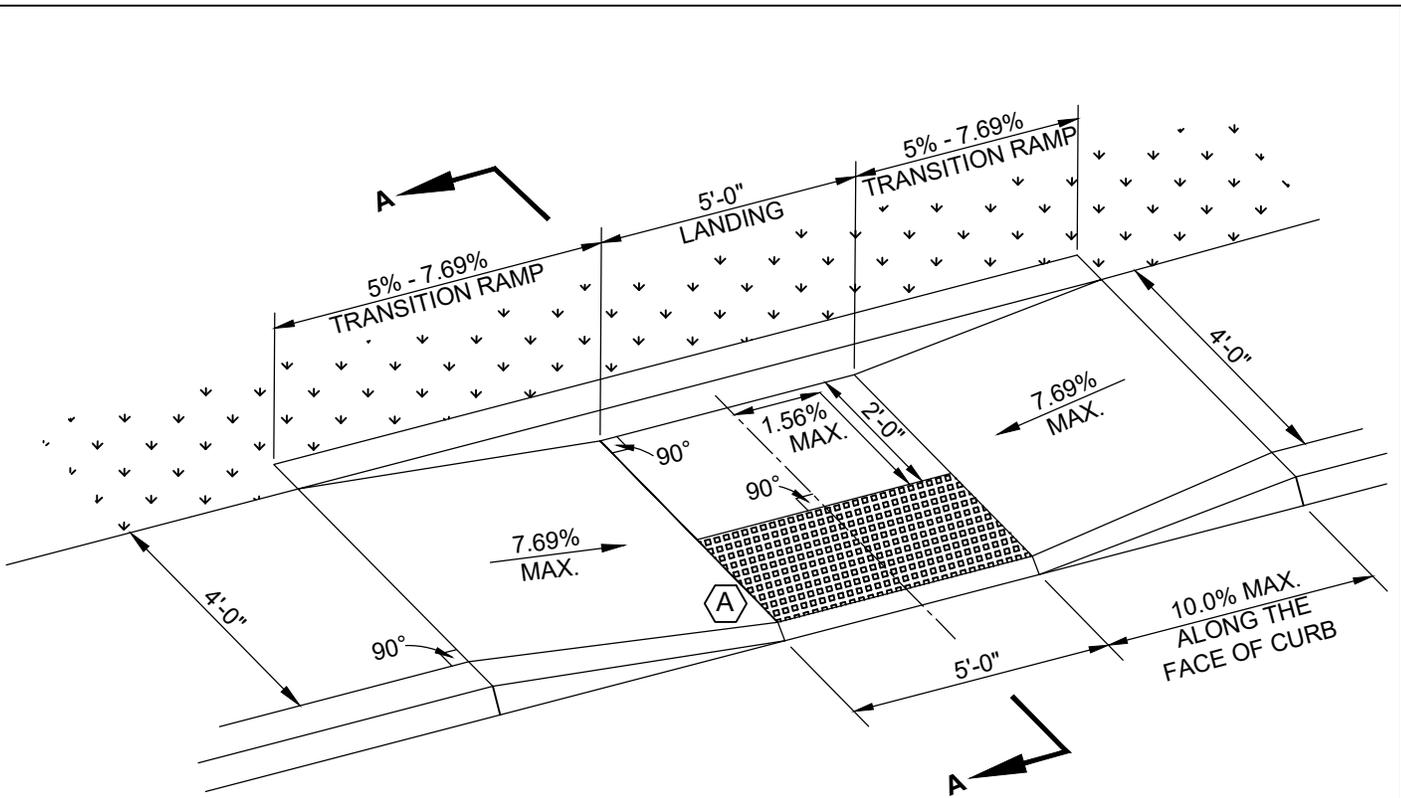
CURB RAMP TYPE L-2

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SECTION A-A

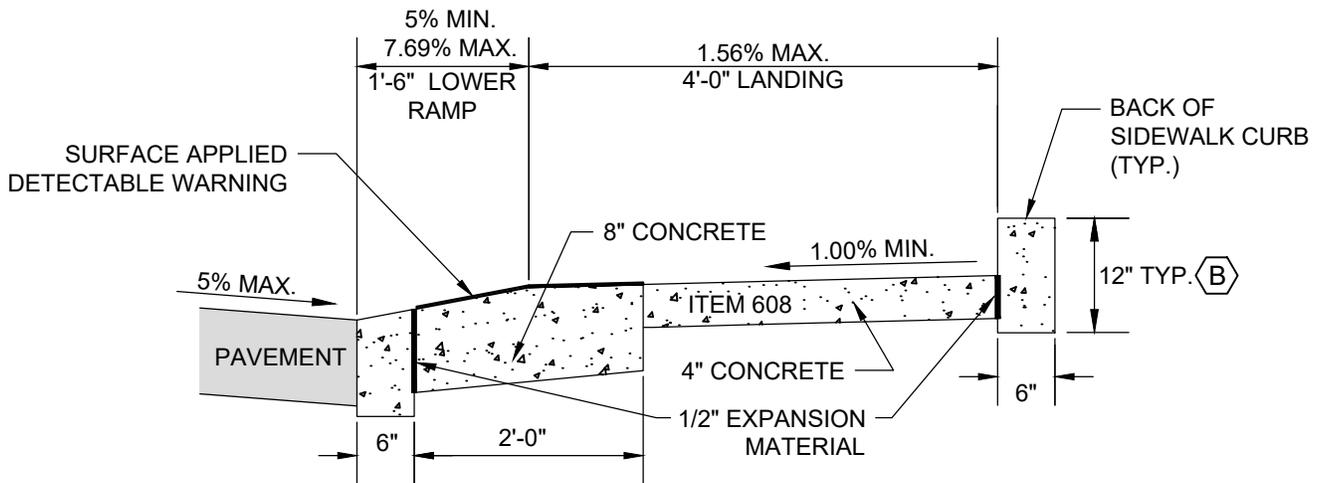
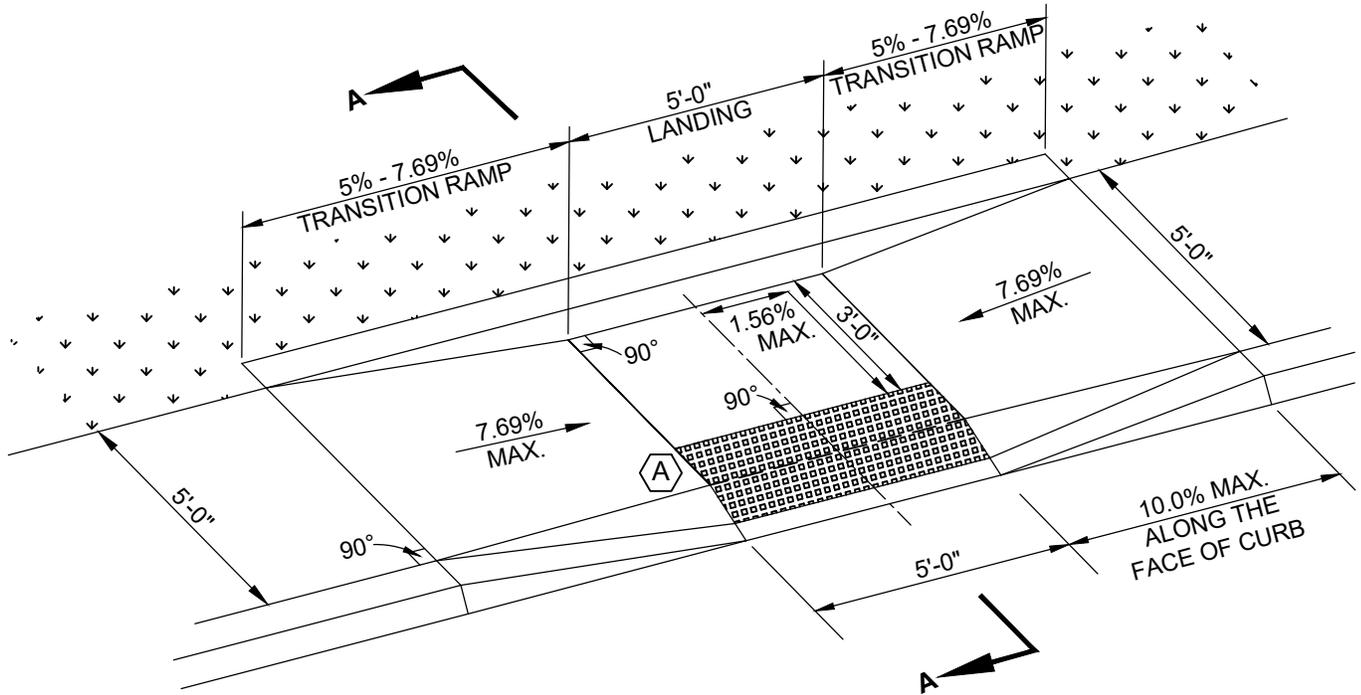
CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS
- (B) EXPOSED REVEAL MUST EQUAL BURIED DEPTH; 12" MAXIMUM REVEAL; FOR ADDITIONAL DETAILS SEE CURB WALL SPECIFICATION

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

<h1 style="margin: 0;">CURB RAMP</h1> <h2 style="margin: 0;">TYPE P-4</h2>	
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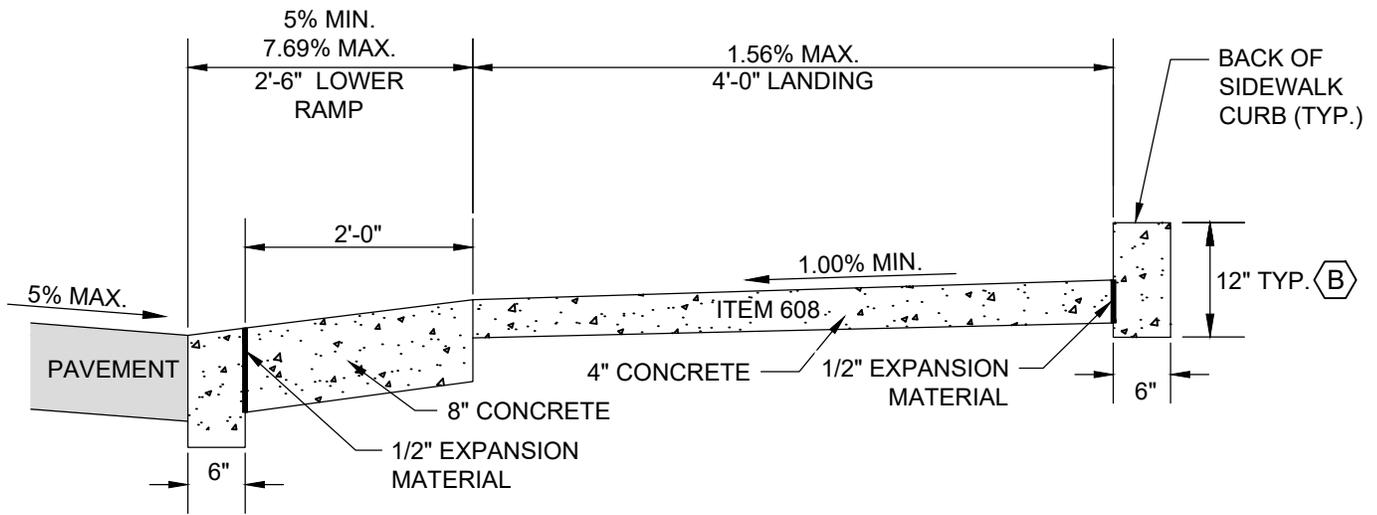
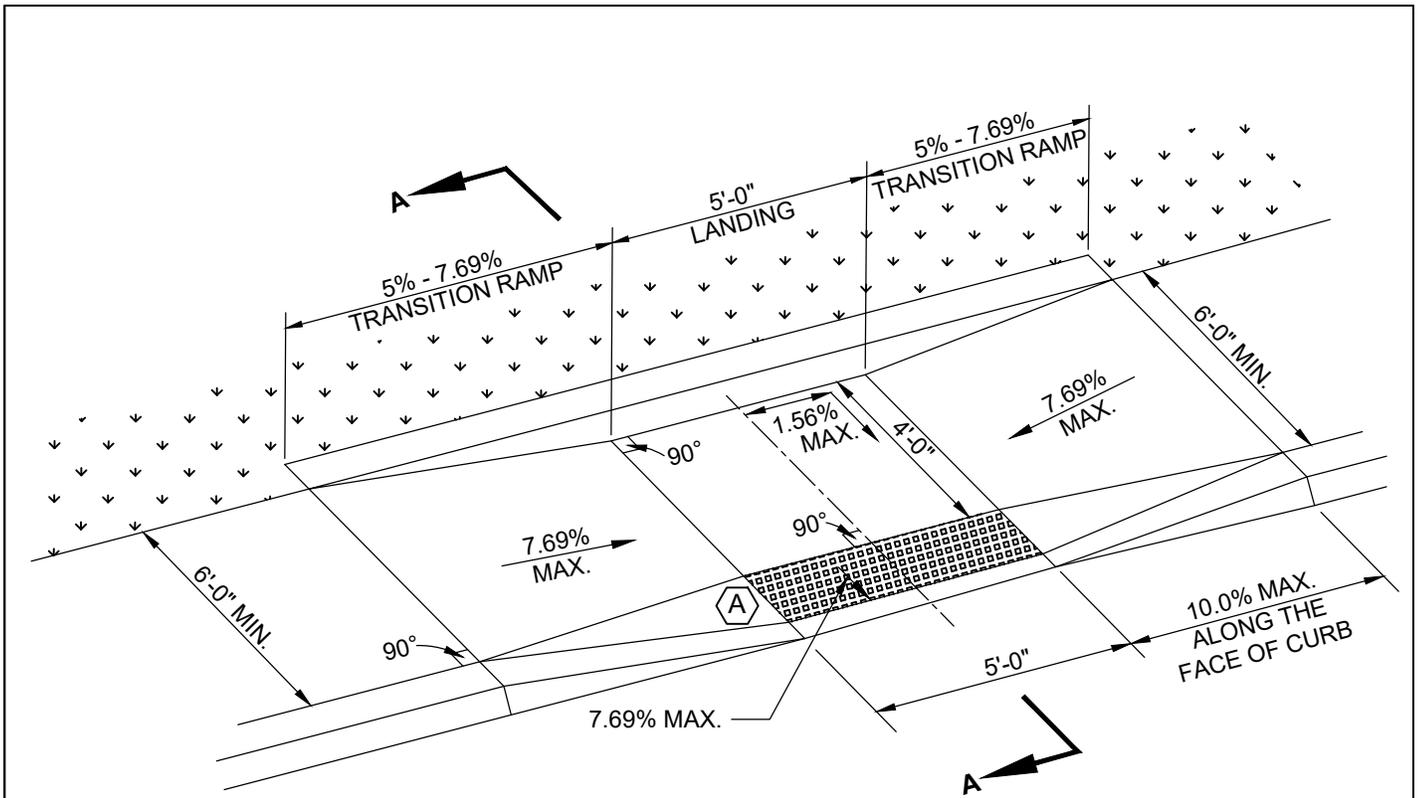
CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS
- (B) EXPOSED REVEAL MUST EQUAL BURIED DEPTH; 12" MAXIMUM REVEAL; FOR ADDITIONAL DETAILS SEE CURB WALL SPECIFICATION

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

<h2 style="margin: 0;">CURB RAMP TYPE P-5</h2>	
CITY OF COLUMBUS, OHIO DEPARTMENT OF PUBLIC SERVICE DIVISION OF DESIGN AND CONSTRUCTION	STD DWG <h1 style="margin: 0;">2319</h1>
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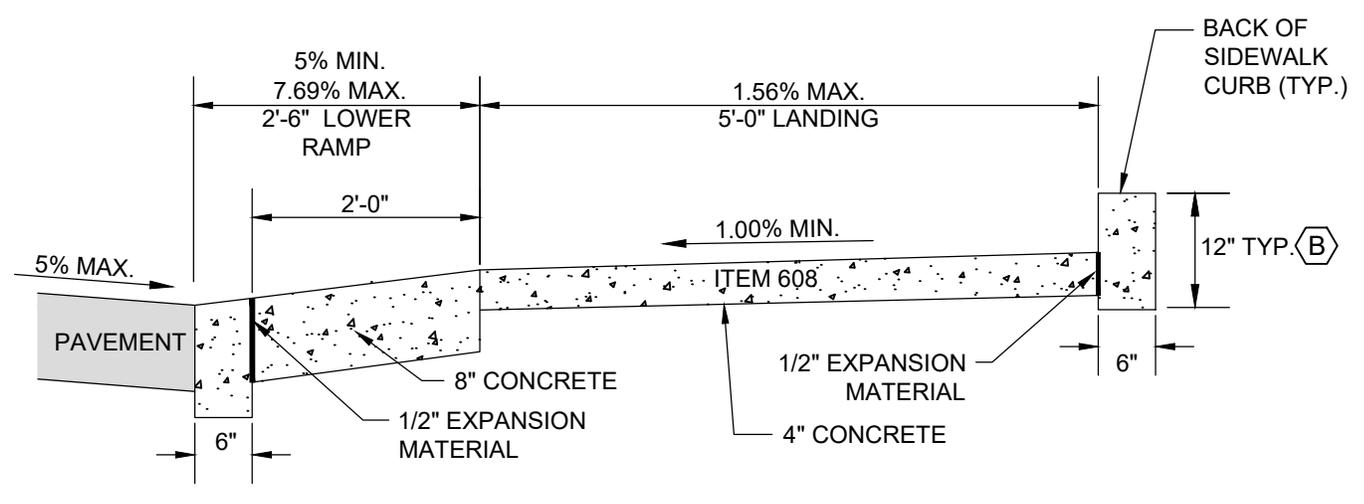
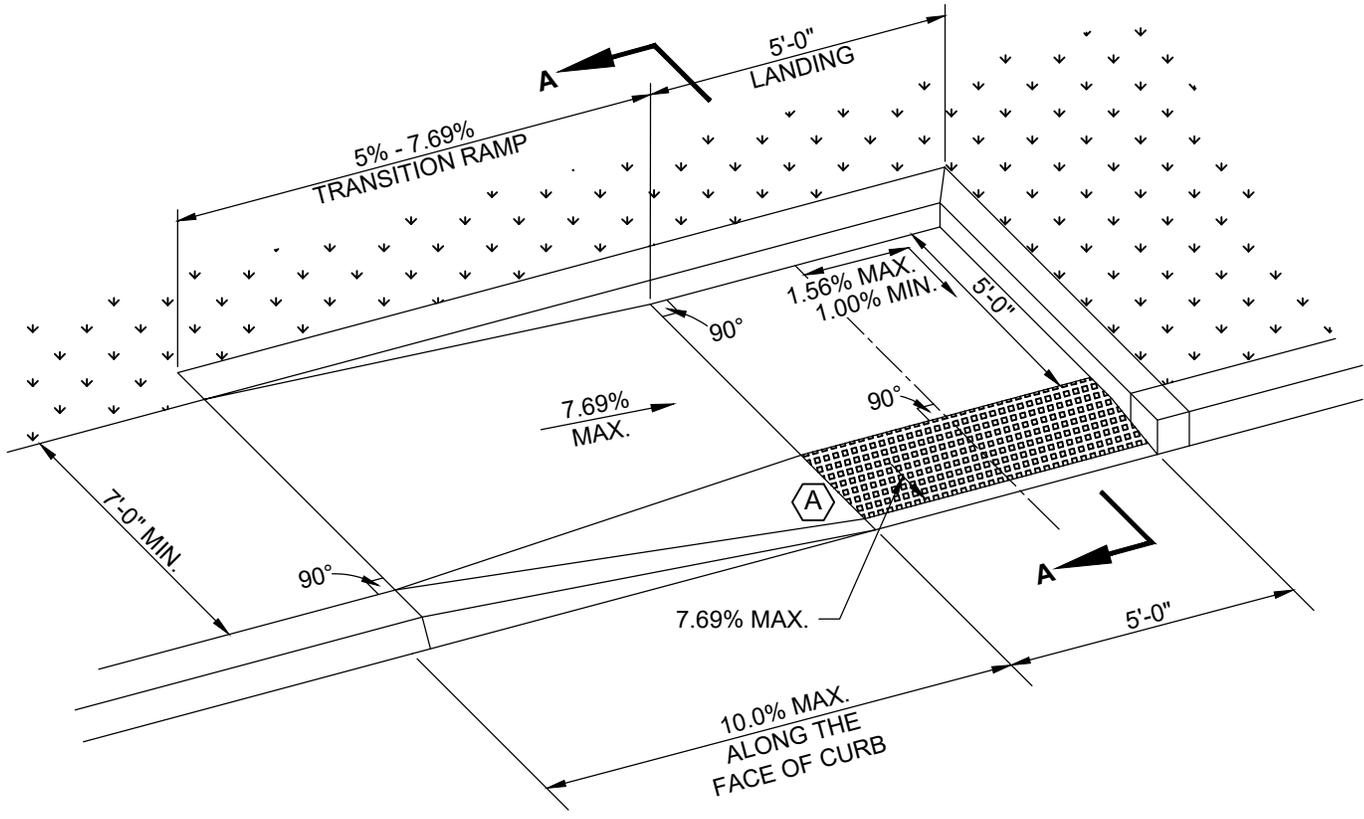
CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS
- (B) EXPOSED REVEAL MUST EQUAL BURIED DEPTH; 12" MAXIMUM REVEAL; FOR ADDITIONAL DETAILS SEE CURB WALL SPECIFICATION

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

<h1>CURB RAMP TYPE P-6</h1>	
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CODED NOTES:

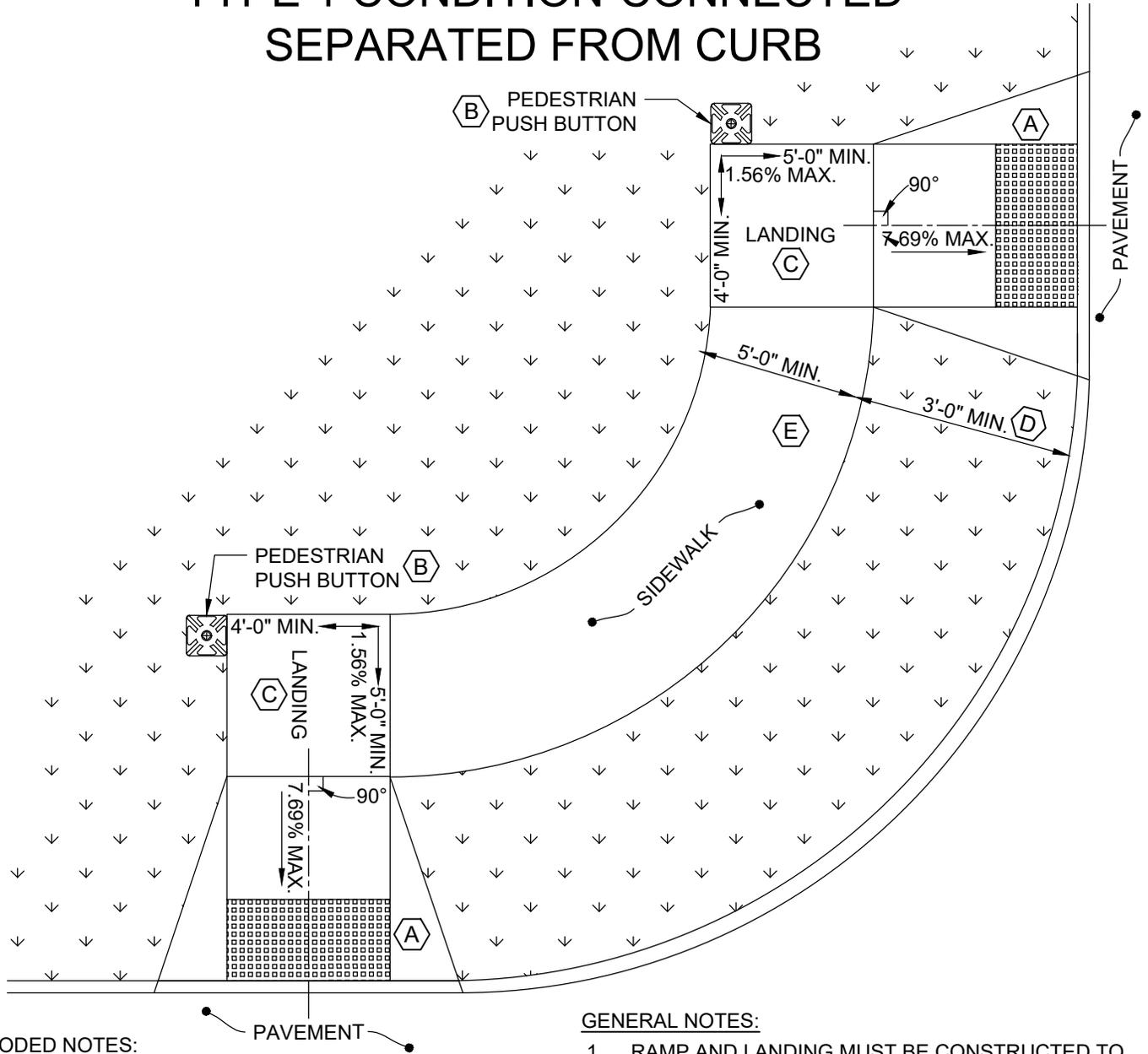
- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS
- (B) EXPOSED REVEAL MUST EQUAL BURIED DEPTH; 12" MAXIMUM REVEAL; FOR ADDITIONAL DETAILS SEE CURB WALL SPECIFICATION

GENERAL NOTES:

1. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

<h2 style="margin: 0;">CURB RAMP TYPE P-7</h2>	
CITY OF COLUMBUS, OHIO DEPARTMENT OF PUBLIC SERVICE TRANSPORTATION DIVISION	STD DWG <h1 style="margin: 0;">2319</h1>
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PEDESTRIAN PAD (PP) TYPE 1 CONDITION-CONNECTED SEPARATED FROM CURB



CODED NOTES:

- (A)** USE 1-FT FLARES ON CURBED ROADWAY. ON UNCURBED ROADWAY RAMP SHALL BE CONSTRUCTED WITHOUT FLARES, SEE STANDARD DRAWING FOR DETECTABLE WARNING PLACEMENT DETAILS. THE FRONT TWO FEET OF THE RAMP AND FLARES SHALL BE CONSTRUCTED USING CONCRETE 8" THICK AND TRANSITIONING TO 4" CONCRETE FURTHER THAN 2 FEET FROM THE BACK OF THE CURB
- (B)** ORIENTATION/LOCATION OF PUSH BUTTON/PEDESTAL TO BE PER POLICY
- (C)** LANDING SHALL BE 5-FT BY 5-FT WHEN SURROUNDED BY CURB WALL, AND THE PEDESTRIAN PUSH BUTTON SHALL BE INTEGRAL WITH THE CURB WALL
- (D)** IF UTILITY STRIP IS LESS THAN 3-FT, SIDEWALK SHALL BE CONSTRUCTED ADJACENT TO CURB, SEE PP-2
- (E)** SIDEWALK WIDTH AND LANDING DEPTH MAY BE REDUCED TO 4' DUE TO CONSTRAINTS.

GENERAL NOTES:

1. RAMP AND LANDING MUST BE CONSTRUCTED TO DRAIN, TYPICALLY TOWARDS THE ROADWAY, BUT MAY VARY BASED ON EXISTING TOPOGRAPHY. WEEP HOLES ARE NOT PERMITTED FOR DRAINAGE.
2. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

CURB RAMP TYPE PP-1

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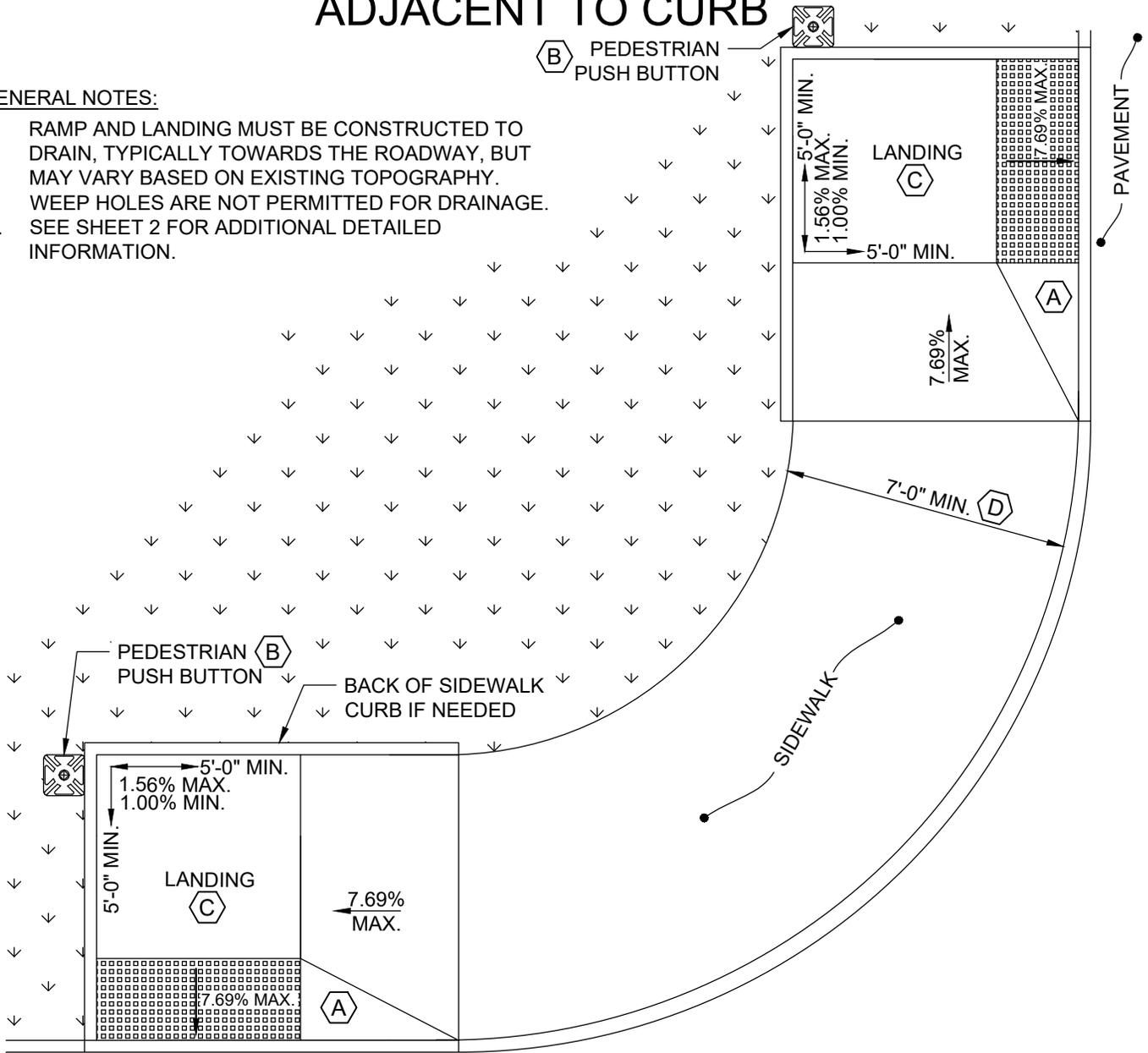
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PEDESTRIAN PAD (PP) TYPE 2 CONDITION-CONNECTED ADJACENT TO CURB

GENERAL NOTES:

1. RAMP AND LANDING MUST BE CONSTRUCTED TO DRAIN, TYPICALLY TOWARDS THE ROADWAY, BUT MAY VARY BASED ON EXISTING TOPOGRAPHY. WEEP HOLES ARE NOT PERMITTED FOR DRAINAGE.
2. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

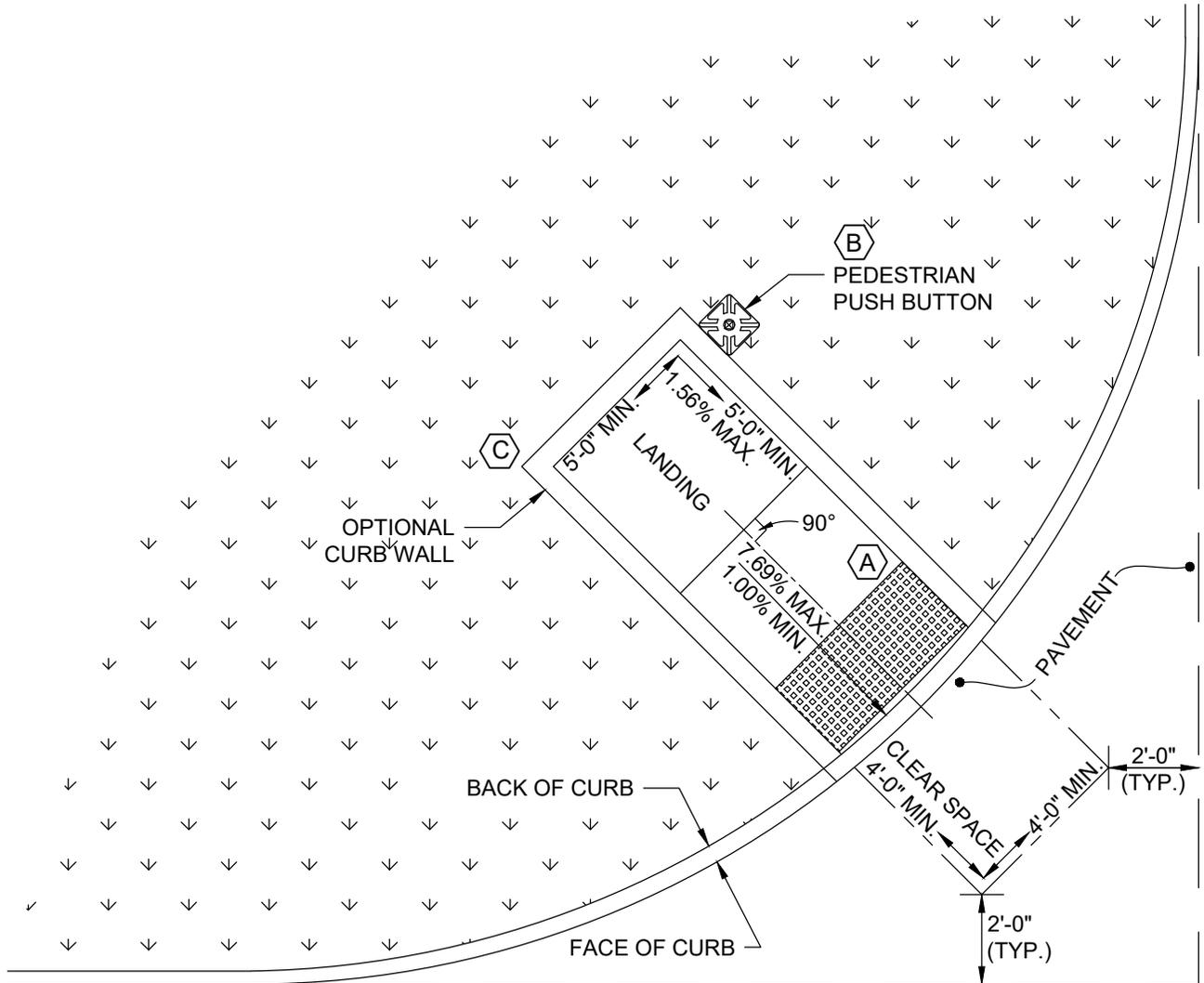


CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS. THE FRONT TWO FEET OF THE RAMP AND FLARES SHALL BE CONSTRUCTED USING CONCRETE 8" THICK AND TRANSITIONING TO 4" CONCRETE FURTHER THAN 2 FEET FROM THE BACK OF THE CURB
- (B) ORIENTATION/LOCATION OF PUSH BUTTON/PEDESTAL TO BE PER POLICY
- (C) WIDTH OF THE RAMP AND LANDING MAY BE REDUCED TO 4-FT WHERE NO CURB WALL IS PRESENT
- (D) SIDEWALK WIDTH MAY BE REDUCED TO 5-FT MIN. WHEN CONSTRAINED. SEE RAMP TYPE P-4, SECTION A-A FOR RAMP AND LANDING

CURB RAMP TYPE PP-2	
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PEDESTRIAN PAD (PP) TYPE 3 CONDITION-SHARED CURB IS PRESENT



CODED NOTES:

- (A) SEE SHEET 21 FOR DETECTABLE WARNING DETAILS. THE FRONT TWO FEET OF THE RAMP AND FLARES SHALL BE CONSTRUCTED USING CONCRETE 8" THICK AND TRANSITIONING TO 4" CONCRETE FURTHER THAN 2 FEET FROM THE BACK OF THE CURB
- (B) ORIENTATION/LOCATION OF PUSH BUTTON/PEDESTAL TO BE PER POLICY
- (C) CURB WALL MAY BE NECESSARY BASED ON EXISTING TOPOGRAPHY. IF CURB WALL IS NOT CONSTRUCTED, THE LANDING WIDTH CAN BE REDUCED TO 4'x4'.

GENERAL NOTES:

1. RAMP AND LANDING MUST BE CONSTRUCTED TO DRAIN, TYPICALLY TOWARDS THE ROADWAY, BUT MAY VARY BASED ON EXISTING TOPOGRAPHY. WEEP HOLES ARE NOT PERMITTED FOR DRAINAGE.
2. SEE SHEET 2 FOR ADDITIONAL DETAILED INFORMATION.

CURB RAMP TYPE PP-3

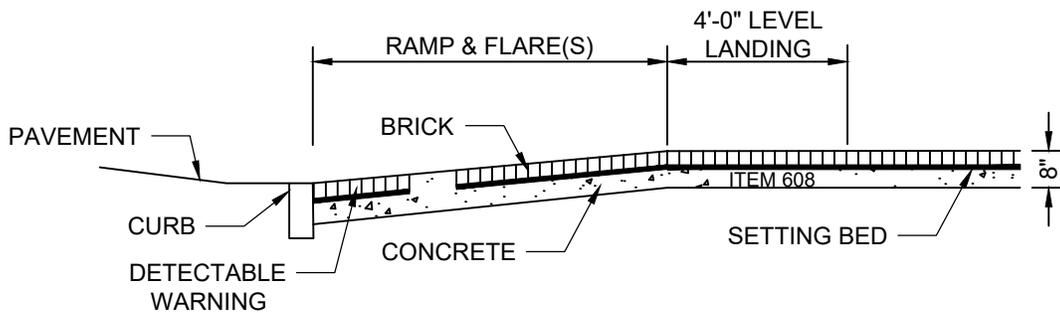
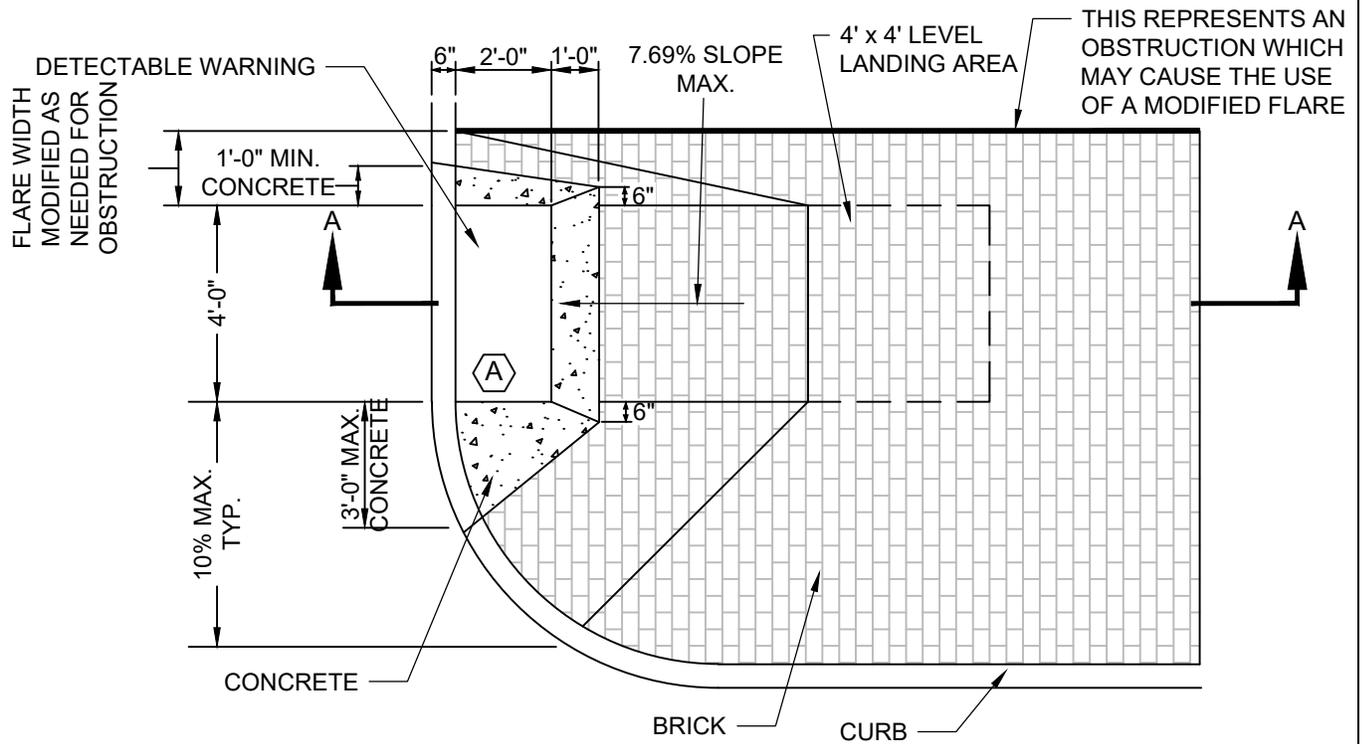
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SECTION A-A

1. WRITTEN APPROVAL FROM THE CITY ENGINEER OR AN AUTHORIZED REPRESENTATIVE SHALL BE OBTAINED PRIOR TO THE DESIGN OR CONSTRUCTION OF GRANITE OR AN ALTERNATE MATERIAL CURB RAMP.
2. ALONG WITH THE REQUIREMENT OF THIS SHEET FOR BRICK OR GRANITE CURB RAMPS, ALL OTHER APPLICABLE REQUIREMENTS OF 2319 SHALL BE FOLLOWED.
3. BRICK OR GRANITE CURB RAMPS SHALL BE TYPED PER 2319. TYPICALLY TYPE A OR TYPE D WILL BE USED. ALL APPLICABLE DIMENSIONS AND REQUIREMENTS FOR THE SELECTED TYPE OF RAMP SHALL BE FOLLOWED.
4. LONG FLARES WILL BE USED WHEREVER POSSIBLE. A MODIFIED FLARE SHALL BE USED WHEN AN OBSTRUCTION EXISTS.
5. THE INSTALLATION OF THE BRICK OR GRANITE PAVERS SHALL BE DONE PER STD DWG 2301, BRICK SIDEWALK.

CODED NOTES:

 SEE SHEET 21 FOR DETECTABLE WARNING DETAILS

PERPENDICULAR CURB RAMP BRICK SIDEWALK

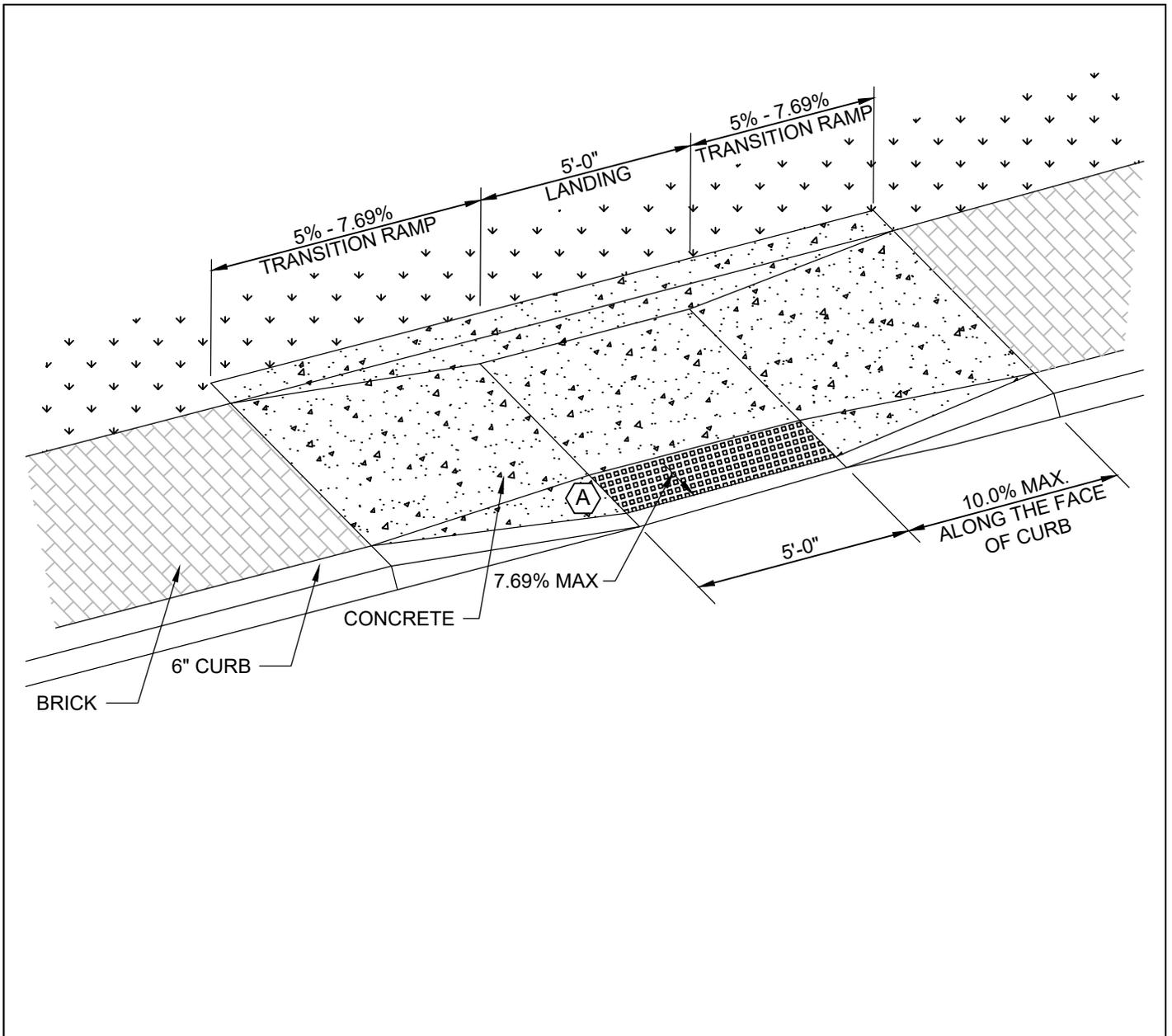
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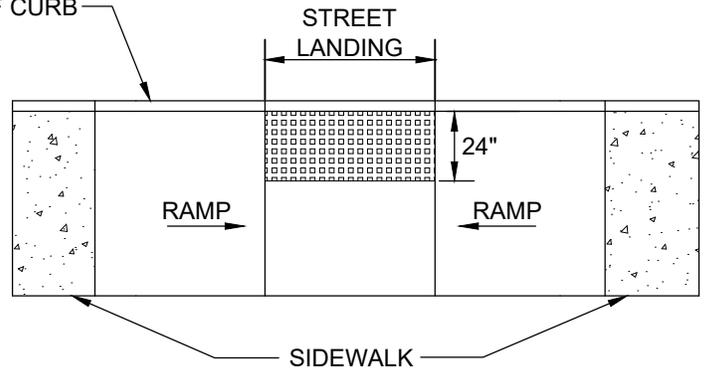
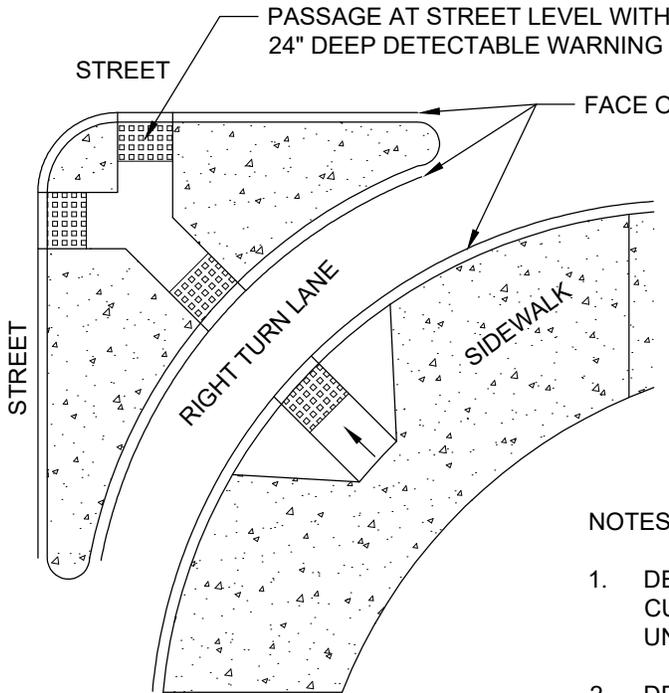
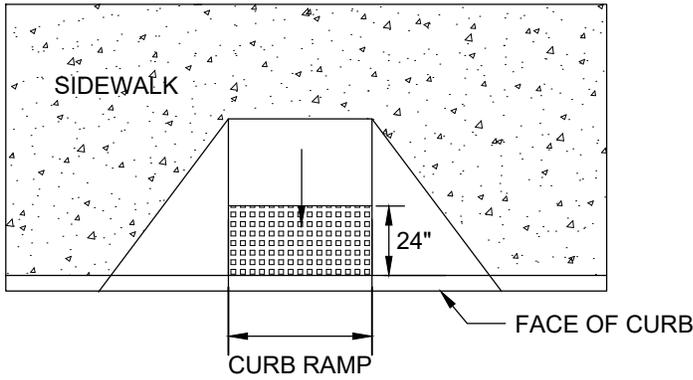


1. WRITTEN APPROVAL FROM THE CITY ENGINEER OR AN AUTHORIZED REPRESENTATIVE SHALL BE OBTAINED PRIOR TO THE DESIGN OR CONSTRUCTION OF GRANITE OR AN ALTERNATE MATERIAL CURB RAMP.
2. ALONG WITH THE REQUIREMENT OF THIS SHEET FOR BRICK OR GRANITE CURB RAMPS, ALL OTHER APPLICABLE REQUIREMENTS OF 2319 SHALL BE FOLLOWED.
3. BRICK OR GRANITE CURB RAMPS SHALL BE TYPED PER 2319. TYPICALLY TYPE A OR TYPE D WILL BE USED. ALL APPLICABLE DIMENSIONS AND REQUIREMENTS FOR THE SELECTED TYPE OF RAMP SHALL BE FOLLOWED.
4. LONG FLARES WILL BE USED WHEREVER POSSIBLE. A MODIFIED FLARE SHALL BE USED WHEN AN OBSTRUCTION EXISTS.
5. THE INSTALLATION OF THE BRICK OR GRANITE PAVERS SHALL BE DONE PER STD DWG 2301, BRICK SIDEWALK.

CODED NOTES:

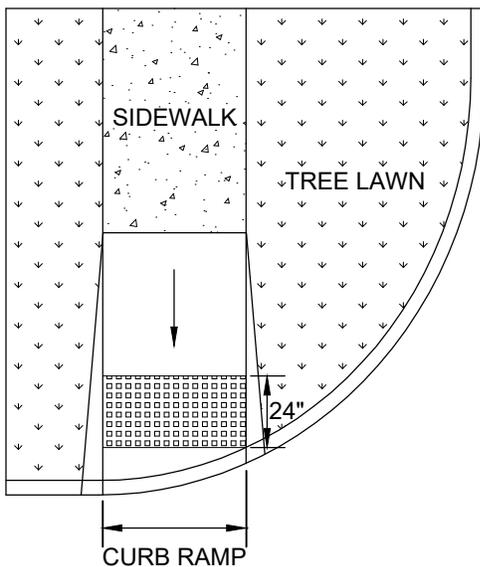
 SEE SHEET 21 FOR DETECTABLE WARNING DETAILS

<h2 style="margin: 0;">PARALLEL CURB RAMP BRICK SIDEWALK</h2>	
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NOTES:

1. DETECTABLE WARNINGS SHALL BE PROVIDED WHEREVER A CURB RAMP CROSSES A VEHICULAR WAY. EXCLUDING UNSIGNALIZED DRIVEWAY CROSSINGS.
2. DETECTABLE WARNINGS SHALL BE PROVIDED 24" IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. THE DETECTABLE WARNING SHALL BE LOCATED ADJACENT TO THE CURB LINE.
3. MATERIALS SHALL COMPLY WITH CMSC 608 AND DPS ADA RULES AND REGULATIONS.
4. DETECTABLE WARNINGS SHALL BE PLACED 6" TO 8" BEHIND THE FACE OF CURB AND BEHIND THE CURB JOINT.
5. CAST IN PLACE OR ANY NON-SURFACE APPLIED DETECTABLE WARNING SHALL HAVE A MINIMUM OF 3" OF CONCRETE ON EACH SIDE OF THE WARNING.



CURB RAMP DETECTABLE WARNINGS

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